# Fullerton College Program Review and Planning
# Self-Study for Instructional Programs
# Fall 2021

**Statement of collaboration**

The program faculty members listed below collaborated in an open and forthright dialogue to prepare this Self Study. Statements included herein accurately reflect the conclusions and opinions by consensus of the program faculty involved in the comprehensive self-study.

**Participants in the self-study**

Mareike Claassen

Tim Cobler

Ken Starkman

**Authorization**

After the document is complete, it must be signed by the Principal Author, the Department Coordinator, and the Dean prior to submission to the Program Review and Planning Committee.

| | | |
|---|---|---|
| _____Mareike Claassen_____<br>Printed name of principal author | _____<br>Signature | 11/10/2021<br>Date |
| _____Mareike Claassen_____<br>Printed name of department coordinator | _____<br>Signature | 11/10/2021<br>Date |
| ___Ken Starkman_____<br>Printed name of Dean | _____<br>Signature | 11-29-2021<br>Date |

## 1.0 Executive Summary

The engineering department is small, but is experiencing some growth pains as we try to meet the demand from students.

Our purpose is to offer a few carefully chosen courses that will be useful to a variety of Engineering majors at four-year universities. There are a lot of students who want to be Engineers, enough to support this department, but likely not enough students who want to be any single type of Engineer to support specialty courses that only apply to one major. We start students off with ENGR 110, in order to help them learn of the variety of Engineering opportunities out there and progress to courses that are required for multiple specific Engineering majors at local universities. For example, ENGR 203/203L Electric Circuits, is required for Mechanical Engineering and Aerospace Engineering majors and not just Electrical Engineering majors.

In order to offer classes that are helpful to most students of any type of Engineering, we keep the number of different courses offered small and slowly grow as we see demand and opportunities to do so. We created a new course during this past program review cycle, which covers an important software application called MATLAB, and have increased section sizes and the number of sections offered in some of our other courses. We request the support needed to continue with this plan of expansion in the hopes that most of our classes can be offered at least once a semester instead of the more historically common option of once a year.

Continuing to increase our offerings should also help with our goal of being more equitable with students of various backgrounds. If we only offer a single section of a course in a single semester a year then we deny all students who have other conflicts during that time from even taking that course. We already try our best to coordinate with other departments to avoid schedule conflicts with classes that Engineering majors would take such as Mathematics and Physics. Sometimes conflicts cannot be avoided, and we have no ability to coordinate with factors outside of school. We are planning to offer ENGR 203L later in the evening this coming Spring and hope that this is beneficial to working students. Additionally, it has been very difficult to get meaningful data to measure data related to equity due to small sample sizes. Ideally, we will be able to get better data in the future as we continue to grow.
In order to be able to add additional sections to our courses, we need more access to classrooms equipped for labs and be able to hire adjuncts for some timeslots, as well as additional lab equipment for student to use.

## 2.0 Mission

Please explain briefly how your program contributes to the College's mission, vision, core values, and goals. Highlight any new contributions since your most recent self-study. If your department has a mission statement, please share it. If not then please consider discussing one with your colleagues.

The main goal of the Engineering program is to prepare engineering students to be successful in transferring and pursuing a bachelor's degree after transfer to a four-year institution. In order to achieve this goal, students have to become successful learners that have the ability to solve complex problems. The Engineering program is dedicated to developing general problem-solving skills, which is reflected in the Student Learning Outcomes of the Engineering courses as well as the Program SLOs. Each course teaches the students to combine knowledge and skills from supporting fields such as Mathematics and Physics with Engineering concepts to solve Engineering problems.
The Engineering program represents a commitment to providing access to education in a traditional and innovative field for a diverse population of students from the surrounding community. It provides a pathway for non-traditional students that may not have been accepted directly into Engineering programs at the University level, as well as a lower cost option for well-prepared students.

## 3.0 Students

Because there is a nearly infinite amount of student data that can be studied, please focus your analysis on the trends that stand out. The Office of Institutional Effectiveness (OIE) is providing data that will help you zero in on bottlenecks, gateways, and student equity issues. As per accreditation standards, OIE data will be broken down by race, ethnicity, gender, and other demographic categories. One of the purposes of this section is to identify inequities and make plans to remedy them.

### 3.1 Enrollment demographics

1. Using the data provided by the OIE, briefly describe the enrollment trends in the program over the past five years.

Over the past five years the program enrollment increased by around 50%. This increase is mostly due to offering additional sections and 1.5 sections for some courses. It is difficult to gauge the true demand when we will fill a class and waitlist for classes that are only offered once a year.

2. Using the data provided by the OIE, describe the student population the department serves. Do you have a way of determining which students are majors, for example through a gateway course? Please explain.

Almost all students taking ENGR course are Engineering majors, even if they have not declared that as their major at A&R. Most of the courses have many pre-requisites and are too specialized to serve any other majors. It is also rare for a non-Engineering major to have any need to take an ENGR

course. The only exceptions are ENGR 105 Auto-CAD and ENGR 101A Surveying, that get a few students who take them for professional development in their jobs.

3. Which classes have the highest demand and why? Are they offered regularly -- at different times of the day and week, in different formats (in-person, on-line, hybrid)? Please explain.

The program is very small with only 7 courses in ENGR total. Most of these courses are offered only once or twice per year. With so few courses we try to vary the time of day in alternating years where possible. In general, most course have high enrollment, and we are increasing the number of sections offered as budgets allow. Currently ENGR 110 seems to have the highest demand not being met judging by its fill-rate and we hope to offer an additional section in the future. The demand for ENGR 203/203L has been met some years by offering a 1.5x section, but this may not be a long-term solution.
The majority of major preparation courses for Engineering majors are in MATH and PHYS, where multiple sections of the relevant courses are offered at various times.

4. Please describe how course offerings match students' preparation and goals.

The courses offered are all required courses for Bachelor's degrees in various Engineering programs. The Fullerton College ENGR program is designed to facilitate transfer of Engineering majors to 4-year universities to complete their BS, so they meet the student's goals.

5. Does enrollment vary by semester? Please describe how course offerings are adjusted to meet student demand and help students reach their academic goals.

Enrollments vary by semester because some courses are only offered once per year. We design the timing to match the demand from students, which is guided by when they meet courses in the pre-requisite sequence from other departments. We also try to grow our offerings over time to meet increased demand when we observe it.

### 3.2 Student Achievement and Equity (and student demographic profile)?

1. Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, degrees/certificates, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

Success rates have decreased slightly because we offered a higher proportion of the more difficult higher-level courses. The success rates for individual course are steady, except for the Covid year
The number of transfer students has increased until the Covid pandemic.

2. Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

Latinx and Black students' success rate is about 5-7% lower than the success rate for White and Asian students. From anecdotal evidence much of this is due to more distraction from studying due to economic needs and family obligations. There is also an issue of small sample size as when we offer a course once or twice a year, there are not a lot of students in some demographics.

3. Does the department have regular discussions about equitable grading, attendance, late-work, and extra credit policies, or about other strategies for helping students succeed? Could reforming classroom policies help more students succeed? Please explain.

Most instructors have grading policies that allow for exceptions to due dates, and back-up assignments such as dropped HW and quizzes. However, in order to prepare students for the demand of the workplace in Engineering, some regular deadlines are needed. Time management skills are an essential component of the Engineering curriculum and are developed in our courses with the policies we have set.

4. Please write a brief Equity Action Plan. What strategies can you implement to close this gap in student achievement within the next five years? What professional learning, curriculum development, or other forms of support does your department need?

The department coordinator or another designated faculty member will attend the Engineering Liaison Council meetings which has added a session on equity, and bring strategies designed to close the equity gap specifically in Engineering back to the campus.

### 3.3 Student Achievement and Pathways

1. Using the data provided by the OIE, briefly describe how students have moved through the program over the past five years: unit accumulation, prerequisites, corequisites, substitutions, gateway courses, and bottleneck courses. (Not all of these measures apply to every program.)

In order to successfully transfer in Engineering, students need to complete many pre-requisite courses offered by other departments such as Math and Physics. The bottle neck courses are hence not in ENGR, but generally in Physics and Math. PHYS 221 and 222 are often in high demand with fill rates at or over capacity, and students cannot get seats when they need. PHYS 221 and 222 also have low success rates that have been declining over the past few years and many students are delayed in their ability to take ENGR courses because of this. In addition Math 151 and Math 152 , while offered at sufficient capacity, also have low success rates and are holding up students even earlier in the pre-requisite chain.

2. For transfer degree programs: Are your current requirements in line with the Transfer Model Curriculum, or have you added extra steps, such as prerequisites? If you added extra steps, please explain.

Because Engineering is a high unit major, it was excluded from the law that created AS-T degrees, and hence no official Transfer Model curriculum exists. Moreover, at the 4-year university level Engineering is not a single major, but many different programs with their own curriculum. However, the Engineering Liaison Council (ELC), a statewide organization that connects Community Colleges to UCs and CSUs, has developed a template similar to the TMC along with CID descriptors of the ENGR course, and Fullerton College follows those models.

3. Please provide an update on the curriculum mapping you have done, perhaps in collaboration with Counseling. Are all programs (degrees and certificates) mapped? Based on course offerings for the last two to three years, could a student complete the map(s) you have created? If so, please demonstrate this with some facts from your schedules. If not, how will you address these discrepancies?

In collaboration with counseling, we have mapped one 2-year and two 3-year Guided Pathways for ENGR majors that can be achieved with currently offered course. The ENGR department coordinator, consults with PHYS and MATH to ensure that courses needed by students in the same semester do not conflict in time.

4. Do the data reveal differences among your AA, ADT, or certificate programs (in enrollment, completion, or success, for example)? Please explain.

N/A there is only ONE degree.

### 3.4 Faculty

1. Using the data provided by the OIE, briefly describe the faculty workload over the past five years: FTF (full-time faculty), PTF (part-time, or "adjunct" faculty), FTEF (full-time equivalent faculty), WSCH per FTEF (weekly student contact hours). (Not all of these measures apply to every program.)

The total load in ENGR supports a little over 1 FTEF (not ~3 as provided by the data). Two FTF serve partially in ENGR but also teach full-time in MATH. Serving in two divisions brings additional workload due to dual demand for administrative tasks. Some of the adjunct faculty cover specialty courses or summer offerings.

2. If your department plans to request hiring a full-time faculty member, this is the place to make the argument. Please discuss hiring needs in reference to data analyzed in sections 3.1 to 3.4.

Since Engineering covers multiple varied disciplines, some courses are better taught by a specialist PTF than a FTF who did not study that area of Engineering. Hence, we retain multiple adjunct faculty members. We plan to hire another adjunct faculty member to teach the new Matlab course and maybe another faculty with industry experience to bring a special perspective to a section of the Intro to Engineering course.

### 3.5 Covid-19

Using the data provided by the OIE, briefly describe how the Covid-19 pandemic affected your department and how your department has adjusted. Did you make temporary changes? Or have you adopted new, long-lasting practices that enhance teaching?

Some courses in ENGR were more affected than others. For the most "hands-on" course, ENGR 101A Surveying, where training on the actual equipment is essential for the student's success in the future workplace, we chose to not offer the course in Fall 2020, but held off until the lab portion could be conducted in person in Spring 2021. Luckily that lab is naturally outdoors and socially distant. While we had the equipment to allow student to take home kits for the Circuits lab (ENGR203L), it was extremely difficult to help students find small errors in tiny circuits over Zoom and we do not plan to have this class in a remote format in the future.
We have been offering Statics (ENGR 201) in flipped Zoom format after recording lecture videos to be watched asynchronously. This allows students to interact and ask questions "live". In the long-run this may lead to a hybrid course model. Another benefit of Zoom was that guest speakers from industry for the Intro to Engineering class (ENGR 110) could more easily fit their presentations into their work schedule.

### 3.6 What has not been asked?

Please tell us about other ways your department has been successful, ways that the previous questions might have missed.

Despite enrollments shrinking in general at the college during the pandemic, ENGR has offered more sections and fill-rates are mostly close to 100%.

## 4.0 Outcomes

### 4.1 Program Student Learning Outcomes (PSLOs)

Since the last self-studies, the College adopted new Institutional Student Learning Outcomes (ISLOs) and new design principles for PSLOs. Please describe your department's PSLO revisions to date, and your PSLO plans.

PSLOs in Engineering were revised in Summer 2021 to align with the new design principles. They were taken directly from the ABET SLOs. ABET is the accrediting institution for Engineering programs at 4-yr universities.

### 4.2 PSLO Assessment

The new PSLO design principles encourage departments to use PSLOs as a way of gauging student learning once they have completed a degree or certificate, not just when they have completed a single course. Please describe how PSLOs are assessed or will be assessed in your department.

A combination of the CSLOs for all ENGR courses are used to each PSLO.

### 4.3 CSLO Assessment

Briefly describe the timeline your department uses to assess CSLOs on a regular basis and how you use the results to make improvements. This discussion should be based on SLO data, which is available on eLumen. (Your division's SLO reps can help with this.) Please include relevant CSLO charts or graphs in an Appendix. Since the last self-study, you should have assessed the CSLOs of every course that you have taught, at least once. If that is not the case, please describe how you will accomplish this as soon as possible.

Most courses in ENGR have had a CSLO assessed since the last Program Review. The missing courses are taught by adjuncts and will be assessed when we return to campus.

### 4.4 SLO Equity Analysis

1. Looking at CSLO attainment data, do you find significant differences by race, ethnicity, gender, and other categories? Please include some illustrations of this data in the Appendix. Describe here what the data shows. What strategies will you use to close the attainment gaps among groups of students? What kinds of professional learning would help?
2. Compare the equity analysis in this section to the equity analysis in Section 3.2. Are there some groups who have lower completion and success rates AND lower SLO attainment rates than other groups? Can new departmental strategies close both gaps? Please explain. [For example, many departments found that their SLO attainment gaps are quite a bit smaller than their success gaps (or the gaps don't exist). This might mean that many students who get a D or lower in a course are actually learning the material (i.e. attaining the SLOs) but they are winding up with a failing grade for other reasons: absences, tardies, missed assignments, missed exams, poor performance on high-stakes assignments.]

The CSLO data matches the data for success rates, Hispanic students' success rate is lower than the success rate for White and Asian students. As mentioned before, from anecdotal evidence many Latinx students have more distraction from studying due to economic needs and family obligations. Being able to hold virtual office hours in Zoom at non-conventional times, might allow students with a lot of non-academic commitments to make use of those resources. CSLO data also indicates that female students perform lower than male students. This is a widespread issue in Engineering everywhere that is created by lower success of females all along the STEM pipeline. Small sample size is an even more prevalent issue in CSLO data.

## 5.0 Other Areas of Program Effectiveness

### 5.1 Your Department and General Education

1. Using the data provided by the OIE, please look at students who take your courses for GE credit.
2. What role does your department play in helping students complete the GE pathway?
3. Do you offer GE courses at a variety of time slots and at a frequency that allows students to fulfill GE requirements?
4. Please take into account daytime, evening, weekend, and online classes to provide a brief sketch of your GE course availability.

N/A No GE courses are offered

### 5.2 Outside Influences on Your Department

1. Describe any laws, regulations, trends, policies, procedures, or other influences that have an impact on your program. Please include any other data that may be relevant to student achievement, learning, and trends within your Basic Skills, CTE, or Transfer Education programs.
2. Make sure you are including all degree and certificate programs, including the College's GE program.
3. Please also consider not only your courses, but also prerequisite and corequisite courses that might be offered by a different department.
4. If AB 705 applies to the program then how are you meeting its mandates?

Many of the challenges faced by the Engineering Program are outside of the control of the department. Student success in the Engineering courses depends highly on good preparation in the pre-requisite mathematics, physics, and chemistry courses. The lack of sufficient offerings of the PHYS 221-223 sequence in particular is slowing students down. Hiring more full-time faculty in the Physics department is needed.

There is also early evidence that the effects of AB705 on the Math curriculum, if leaving students with weaker preparation even after completing higher level courses such as calculus. Currently, the effects of the pandemic and online learning, are also leading to weak preparation from pre-requisite classes.

### 5.3 Your Program's Active and Applied Learning and High-Impact Practices

1. The College wants to create an inventory of faculty efforts to make learning active and applied. Please briefly describe opportunities your students have to apply and deepen knowledge and skills through projects, internships, co-ops, clinical placements, group projects outside of class, service learning, study abroad, and other experiential learning activities that you intentionally embed in coursework, or elsewhere in your program.
2. Are there institutional barriers hindering your department's ability to offer or enhance these learning experiences for students? Please explain.

The ever-increasing level of administrative paperwork such as all forms of SLOs, extended program review, guided pathways, more complicated curriculum review cycles, online training, and many more put an undue burden on the department coordinator and faculty in general. In addition, an increased number of committee memberships and other service work to the campus adds to faculty workload. This increase in non-teaching workload has taxed the full-time faculty to the point where instruction is suffering especially in a small department where all the administrative work effectively falls onto one faculty member. These programs and projects designed to increase student success are effectively reducing student learning, since faculty are too occupied with paperwork and don't have time to focus on teaching, let alone adding work intensive high-impact practices to the workload.
Hence, we do not offer any high-impact practices in addition to the already build in labs and practical components that are part of the regular Engineering curriculum, such as discussion about internships, resume projects, and lab experiments.

## 6.0 Planning

### 6.1 Progress on Previous Strategic Action Plans

1. Please briefly describe the goals (Strategic Action Plans, SAPs) from your last self-study. How much progress have you made on them? If you have reached a goal, explain how it allows ongoing improvement, especially if you received additional funding.
2. If additional funds were NOT allocated to you in the last review cycle, how did the LACK of funds have an impact on your program?

SAP#1: Partially fulfilled. We increased sections for ENGR 201, but only slightly increased sections for ENGR 203/203L by offering a 1.5 sized section once, and did not increase ENGR 110. Lack of available computer lab classroom space was the biggest obstacle (see SAP#2). The requested funding was not provided.
SAP#2: Partially fulfilled. Funding was provided for Surveying equipment, and new state-of-the-art equipment was purchased and is used to provide students with experience on equipment they will be using in the field. Some additional computer labs were equipped by the division, but additional demand from various departments has outpaced the available space, and more computer labs are still needed.
SAP#3: The curriculum for the Matlab course (ENGR 220) was created and the course was offered in Fall 2020. However, due to the pandemic and increased offerings of the same course at Cypress College, enrollment was low. In addition, some transfer universities no longer require this course, which may also lower the demand. We will re-evaluate a plan to offer this course after we fully return to campus.
SAP#4: Was not funded.

### 6.2 New Strategic Action Plans

Please write brief, concrete plans that you will accomplish over the next four years. Your plans might include requests for additional funds. The Program Review Committee will read these and either endorse the request or ask for more information. Please keep in mind that the Committee's

endorsement does not guarantee additional funding. The President's Advisory Council and Faulty Allocation Committee play major roles in allocating funds and prioritizing new faculty hires.

Please number each of your plans. This will help keep to track of them. Also, make sure that each funding request includes the following elements:

1. It is supported by the data and analysis in previous sections of this self-study.
2. It fulfills a part of the College mission, vision, goals, or objectives.
3. It explains how the request helps the College attain student equity.
4. There is a measurable way to tell if the extra funding will be effective.
5. It considers whether you can reach this goal (or parts of it) without additional funding.
6. Please give a dollar amount, or best estimate. If you can identify a funding source, then please name it. If you can put the request into one of the following categories, please do so: Personnel, Facilities, Equipment, Supplies, Computer Hardware, Computer Software, Training, Other.

Strategic Action Plan (SAP) # 1, department (or program) name: Engineering

| | |
|---|---|
| Describe Strategic Action Plan. | Purchase additional Circuits lab kits |
| List College goal/objective the plan meets. | Goal 1 Obj. 1, 2, 4, 5 |
| Describe the SAP. Include persons responsible and timeframe. | In order to be able to offer a second section of ENGR 203L in one semester without need to share kits, we need to purchase enough equipment to create a second set of lab kits for ENGR 203L. Tim Cobler and Mareike Claassen will order kit components and assemble kits. |
| What Measurable Outcome do you anticipate for this SAP? | Have enough equipment for 2 lab sections. |
| What specific aspects of this SAP can you accomplish without additional financial resources? | none |

If additional financial resources would be required to accomplish this SAP, please complete the section below. Keep in mind that requests for resources must follow logically from the information provided in this self-study.

| **Type of resource** | **Requested dollar amount** | **Potential funding source** |
|---|---|---|
| Personnel | | |
| Facilities | | |
| Equipment | $12,500= 25 kits x $500 per kit | Instructional Equipment funds |
| Supplies | | |
| Computer hardware | | |
| Computer software | | |
| Training | | |
| **TOTAL requested amount** | $12,500 | |

Strategic Action Plan (SAP) # 2 , department (or program) name: Engineering

| | |
|---|---|
| Describe Strategic Action Plan. | Secure lab classroom availability for all ENGR courses |
| List College goal/objective the plan meets. | Goal 1 Obj. 1, 2, 4, 5 |
| Describe the SAP. Include persons responsible and timeframe. | Computer lab space for ENGR 110, ENGR 203/203L and ENGR 220 needs to be available at the times needed to fit the overall scheduling grid for the ENGR students. This classroom conversion should be funded as a division allocation with the Engineering department as one sharing partner, as well as other departments such as DRAF, ARCH, HORT, MACH and CSTR. The division dean is responsible for coordination.<br>The conversion of a regular classroom to a multi-use classroom with smart desks (raise and lower monitor) cost in total about $100,000 per room. This conversion includes furniture (smart desks, chairs), robust computers, network wiring and electrical conduit work. Some rooms in the 700 building have already been converted, but the need for those rooms has outpaced the speed of conversions. |
| What Measurable Outcome do you anticipate for this SAP? | More available lab space for ENGR 203L, 110, 105 |
| What specific aspects of this SAP can you accomplish without additional financial resources? | None |

If additional financial resources would be required to accomplish this SAP, please complete the section below. Keep in mind that requests for resources must follow logically from the information provided in this self-study.

| **Type of resource** | **Requested dollar amount** | **Potential funding source** |
|---|---|---|
| Personnel | $100,000 (classroom conversion) | Instructional Equipment funds |
| **TOTAL requested amount** | $100,000 | |

## Strategic Action Plan (SAP) # 3 , department (or program) name: Engineering

| | |
|---|---|
| Describe Strategic Action Plan. | Improve access to transfer programs and reduce time to transfer for ENGR students |
| List College goal/objective the plan meets. | Goal 1 Obj. 1, 2, 3, 4, 5, Goal #2 Obj 1, 3 |
| Describe the SAP. Include persons responsible and timeframe. | The major component of increasing transfer success for Engineering students is to improve access to the core courses. Provided the necessary funding is available, we plan to double offerings of ENGR 110, and ENGR 203/203L to twice a year. Depending on the available pool of adjunct faculty some of those courses may be offered in a distance education format. Both the availability of online courses as well as more frequent course offerings will allow more students to enroll in those courses, as well as allow students greater flexibility in scheduling the ENGR courses with their other major core courses. Offering additional sections of core classes will allow students to complete their transfer requirements and to complete them in a timely fashion. In addition to increasing the number of awarded degrees and transfers, success and retention rates are also expected to increase, since students will be able to choose their schedules more flexibly and courses will be less over-enrolled. Currently, with only one section of each core course offered per year, students sometimes need to take a large number of difficult units during one semester reducing their success rates. In addition, the sections of the core courses should no longer be over-enrolled allowing faculty to spend more time with individual students and improving success and retention.<br><br>The number of sections can also be only increased if classroom and lab space is available. We have included a plan for increasing computer lab space in SAP #2 that needs to be addressed in order to effectively complete SAP #3.<br><br>The secondary component of increasing transfer success for Engineering students is to continue to keep curriculum up to date and to be aware of articulation and transfer issues around the state. In order to do so, the Engineering faculty need to continue attending Engineering Liaison Meetings and be involved in the CALSTEP program. Travel funds from Staff Development |

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|---|---|
| | have been harder and harder to obtain and funds need to be provided by the division, when Staff Development runs out of funds<br>The Engineering coordinator, Mareike Claassen and other faculty teaching courses, in coordination with the division dean will be responsible. |
| What Measurable Outcome do you anticipate for this SAP? | * Increase the number of sections offered per year for ENGR 110, and 203/203L and increase annual enrollment for those courses. |
| What specific aspects of this SAP can you accomplish without additional financial resources? | none |

If additional financial resources would be required to accomplish this SAP, please complete the section below. Keep in mind that requests for resources must follow logically from the information provided in this self-study.

| **Type of resource** | **Requested dollar amount** | **Potential funding source** |
|---|---|---|
| Personnel | $14,000/yr offering about 14 additional units at $1000/unit per year) | Adjunct staff funds (extended day budget), release time for department coordinator |
| Facilities | see SAP #2 | classroom and lab space for additional sections |
| Equipment | | |
| Supplies | | |
| Computer hardware | | |
| Computer software | | |
| Training | | |
| Other | $2000 /yr (travel to two ELC meetings per year) | Division budget, Staff Development |
| **TOTAL requested amount** | $16,000/year | |

### 6.3 Optional: Long-Term Plans

Your department might have more plans than just immediate requests for funding. If so, please describe them here.

The over-all long-term plans is to continue to meet the demand of Engineering students. Some of the additional sections mentioned in SAP#3, may not be added immediately if funding is not available or if the appropriate staff cannot be found.
Lack of classroom space (in particular for labs) is an ongoing problem. Converting more classrooms to adjustable lecture/computer lab rooms using adjustable computer desks can solve some of these issues. However, this conversion generally lowers the seat count for the classroom, which can lead to other classroom availability issues. With funding for more lab space and more faculty we plan to offer ENGR 203/203L Circuits every semester instead of once per year.
Long-term collaboration with the other STEM disciplines in promoting STEM majors is also important. The Engineering department supports any request by the Physics department to hire additional full-time faculty, since PHYS 221-223 are essential pre-requisites for Engineering students.
The Engineering faculty also plans to work with the Math department to ensure that the ongoing lack of preparation due to AB705 and due to the pandemic will not impact the quality of preparation that the pre-requisite Math courses deliver for the calculus sequence and ENGR courses.

### 7.0 Executive Summary

Please provide the reader with a brief overview of the highlights, themes, and key elements of this self-study. Please don't include new information you did not discuss earlier. Although you will likely write this section last, please remember to put this summary at the front of your report.

The engineering department is small, but is experiencing some growth pains as we try to meet the demand from students.

Our purpose is to offer a few carefully chosen courses that will be useful to a variety of Engineering majors at four-year universities. There are a lot of students who want to be Engineers, enough to support this department, but likely not enough students who want to be any single type of Engineer to support specialty courses that only apply to one major. We start students off with ENGR 110, in order to help them learn of the variety of Engineering opportunities out there and progress to courses that are required for multiple specific Engineering majors at local universities. For example, ENGR 203/203L Electric Circuits, is required for Mechanical Engineering and Aerospace Engineering majors and not just Electrical Engineering majors.

In order to offer classes that are helpful to most students of any type of Engineering, we keep the number of different courses offered small and slowly grow as we see demand and opportunities to do so. We created a new course during this past program review cycle, which covers an important software application called MATLAB, and have increased section sizes and the number of sections offered in some of our other courses. We request the support needed to continue with this plan of expansion in the hopes that most of our classes can be offered at least once a semester instead of the more historically common option of once a year.

Continuing to increase our offerings should also help with our goal of being more equitable with students of various backgrounds. If we only offer a single section of a course in a single semester a year then we deny all students who have other conflicts during that time from even taking that course. We already try our best to coordinate with other departments to avoid schedule conflicts with classes that Engineering majors would take such as Mathematics and Physics. Sometimes conflicts cannot be avoided, and we have no ability to coordinate with factors outside of school. We are planning to offer ENGR 203L later in the evening this coming Spring and hope that this is beneficial to working students. Additionally, it has been very difficult to get meaningful data to measure data related to equity due to small sample sizes. Ideally, we will be able to get better data in the future as we continue to grow.
In order to be able to add additional sections to our courses, we need more access to classrooms equipped for labs and be able to hire adjuncts for some timeslots, as well as additional lab equipment for student to use.

**8.0 Publication Review**

The College wants to maintain integrity in all representations of its mission, programs, and services. Please help this effort by reviewing your publications: professional social media profiles, websites, brochures, pamphlets, etc. Please tell us the date they were last reviewed and if you found them to be accurate in all representations of the College and program missions and services. Information on the college's graphic standards is available here.

1. For each of your program's publications, please provide the URL where the publication can be viewed. If the publication cannot be accessed via the Internet, please contact Lisa McPheron, Director of Campus Communications at lmcpheron@fullcoll.edu.
2. If you find an inaccurate publication, please explain how you will make corrections.
3. If your department maintains a social media presence then please describe it here. What do you use it for? How do you monitor it? Who is in charge of it? In what ways is it benefiting the College and your program? Does it follow the District's social media guidelines?
4. If your program regularly communicates with the wider community, please describe how. What feedback do you get from the community?

The ENGR department does not maintain any social media presence. There are two paper publications published by the Technology & Engineering division, a tri-fold program overview that lists course and degree options, and a list of scheduled classes for the semester. These paper publications were checked for accuracy and meet standards. In addition, there is a department website, maintained by the division which needs updating. Once we return to campus, the Engineering department coordinator will work with the Division website coordinator, to update the Engineering webpage. The department also maintains a course flow-chart for the program to indicate course pre-requisites. This flow-chart needs updating to remove basics skills math course that are no longer offered after AB705. However, we do not have access to the needed software working from home, so this will be updated after we return to campus.

# Fullerton College
# Instructional Program Review
# Fall 2021

## APPENDIX A

## Engineering

**The following packet of information contains data for the comprehensive Instructional Program Review process for the Engineering program.**

**Data cover a five-year period: Summer 2016 - Spring 2021, which includes the 2016-2017 academic year through the 2020-2021 academic year. Data are current through August 1, 2021.**

***NOTE: An academic year includes the Summer, Fall, and Spring terms, so the AY 16/17 includes the Summer 2016, Fall 2016, and Spring 2017 terms.***

***If you have questions about the data packet, please contact the Office of Institutional Effectiveness.***

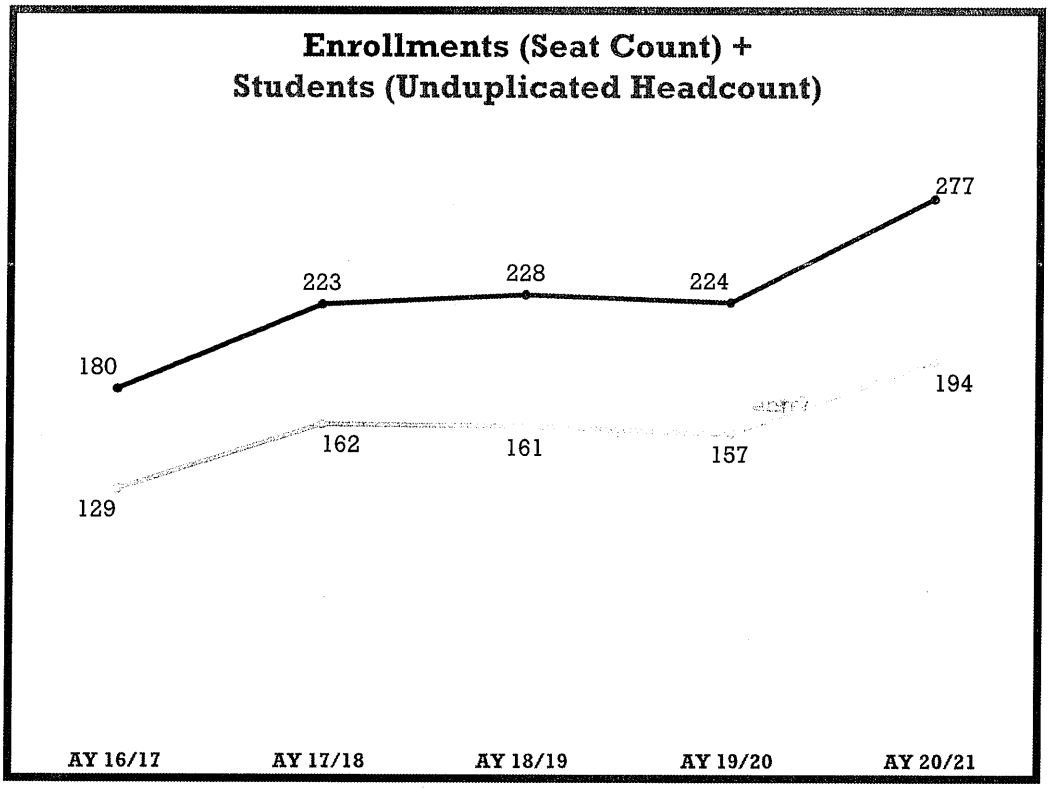
**Program Selector:**

Engineering

# APPENDIX A
# Fall 2021 Instructional Program Review

## Engineering

**SECTION 3.1.1:** ***Enrollment Demographics***: Using the data provided by the OIE, briefly describe the enrollment trends in your program over the past five years.




The "Enrollments and Students" graph to the left shows the number of **enrollments (seat count)** and the number of **unique students (headcount)** enrolling each academic year in the **Engineering** program.

### 5-Year Change Calculation

The following table calculates the % change in **enrollments** and **headcount** between AY 16/17 and AY 20/21.

Note the table shows the change for "**This Program**" as well as the change for all other programs combined at the College.

| | | |
|---|---|---|
| 5-Year % Change in Enrollments | All Other Programs | -12.0% |
| | This Program | 53.9% |
| % Change in Headcount | All Other Programs | -11.8% |
| | This Program | 50.4% |

### 1-Year Change Calculation

The following table calculates the % change in **enrollments** and **headcount** between AY 19/20 and AY 20/21.

Note the table shows the change for "**This Program**" as well as the change for all other programs combined at the College.

| | | |
|---|---|---|
| % Change in Enrollments | All Other Programs | -3.6% |
| | This Program | 23.7% |
| % Change in Headcount | All Other Programs | -3.4% |
| | This Program | 23.6% |

**SECTION 3.1.1:** Using the data provided by the OIE, briefly describe the enrollment trends in your program over the past five years.

**Enrollments (Seat Count) by Course for: Engineering**

| Course | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 | 1 Year Comparison AY 19/20 v. AY 20/21 | 5 Year Comparison AY 16/17 v. AY 20/21 |
|---|---|---|---|---|---|---|---|
| ENGR 101AF | 34 | 32 | 28 | 27 | 21 | -22% | -38% |
| ENGR 105 F | 35 | 43 | 40 | 37 | 46 | 24% | 31% |
| ENGR 110 F | 25 | 26 | 28 | 23 | 36 | 57% | 44% |
| ENGR 201 F | 30 | 69 | 67 | 62 | 82 | 32% | 173% |
| ENGR 203 F | 29 | 27 | 34 | 39 | 42 | 8% | 45% |
| ENGR 203LF | 27 | 26 | 31 | 36 | 39 | 8% | 44% |
| ENGR 220 F | | | | | 11 | | |
| Grand Total | 180 | 223 | 228 | 224 | 277 | 24% | 54% |

*Note: This page(s) is for any program that would like to add commentary on course-level enrollment trends for Section 3.1.1. This table shows course-specific enrollments from AY 16/17, AY 19/20, and AY 20/21. If additional data are needed, please consult FC's KPI Dashboard or connect with OIE.*

The number of different courses offered by the Engineering Program over the last 5 years:

**7**

**SECTION 3.1.2:** Using the data provided by the OIE, describe the student population your department serves. Do you have a way of determining which students are your majors, for example through a gateway course? Please explain...

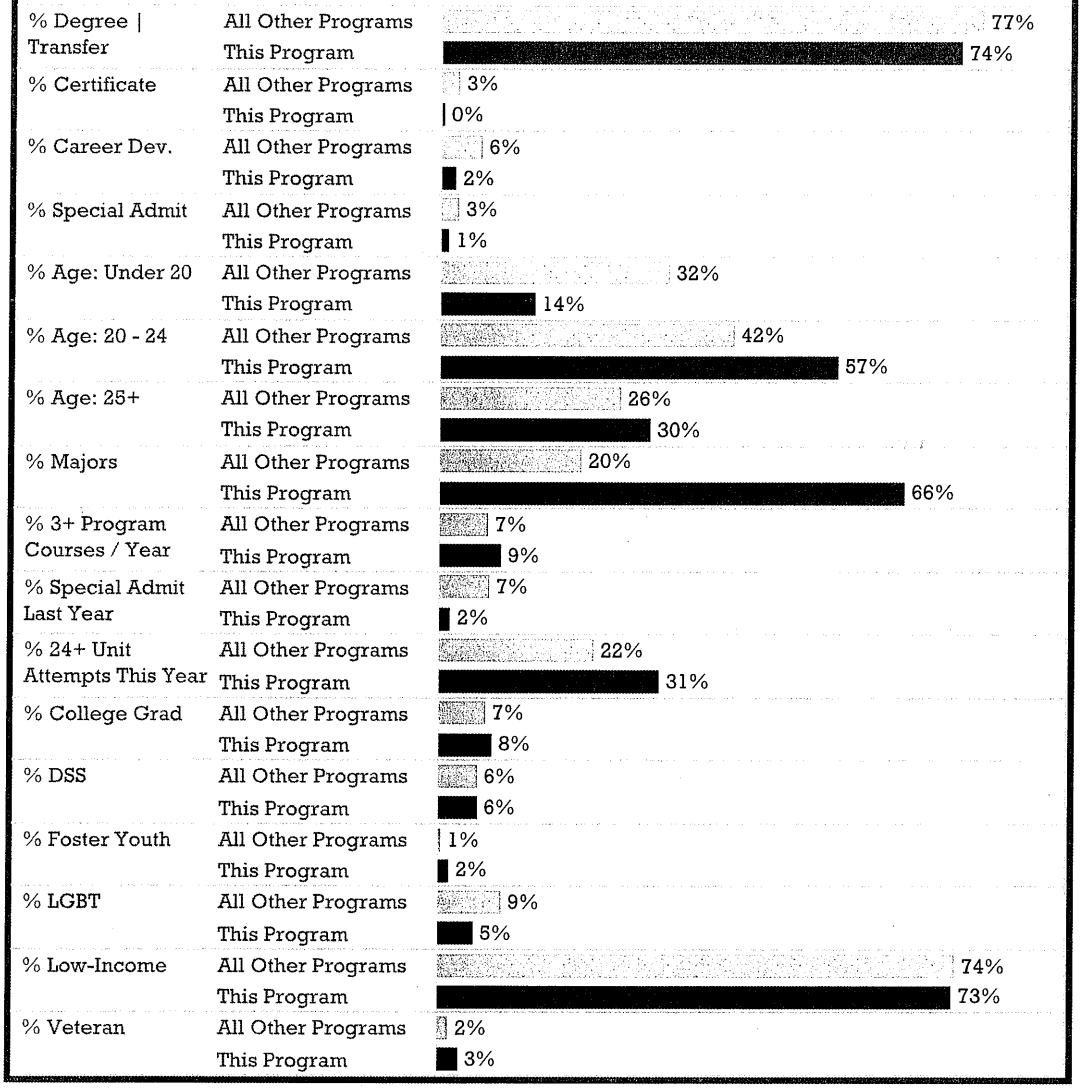
AY 20/21 Enrollments (Seat Count) for **"This Program" Engineering**

**277**

AY 20/21 Enrollments (Seat Count) for "All Other Programs"

**129,706**

## Enrollments in Engineering Compared to All Other Programs: AY 20/21




## Engineering Enrollments by Race | Ethnicity | Ancestry

| | All Other Prog.. | This Program |
|---|---|---|
| Amer. Indian \| Alaska N.. | 0.2% | |
| Asian | 11.2% | 20.6% |
| Black \| African Amer. | 2.9% | 1.4% |
| Filipino | 2.7% | 5.8% |
| Latinx | 57.7% | 48.4% |
| Native Hawaiian \| Pacifi.. | 0.2% | 0.7% |
| Two or More | 3.4% | 4.0% |
| Unknown | 5.7% | 5.1% |
| White | 16.0% | 14.1% |

## Engineering Enrollments by Gender

| | All Other Programs | This Program |
|---|---|---|
| Female | 53.0% | 16.6% |
| Male | 42.4% | 75.5% |
| Different Ident.. | 4.6% | 7.9% |

**SECTION 3.1.2:** Using the data provided by the OIE, describe the student population your department serves. Do you have a way of determining which students are your majors, for example through a gateway course? Please explain...

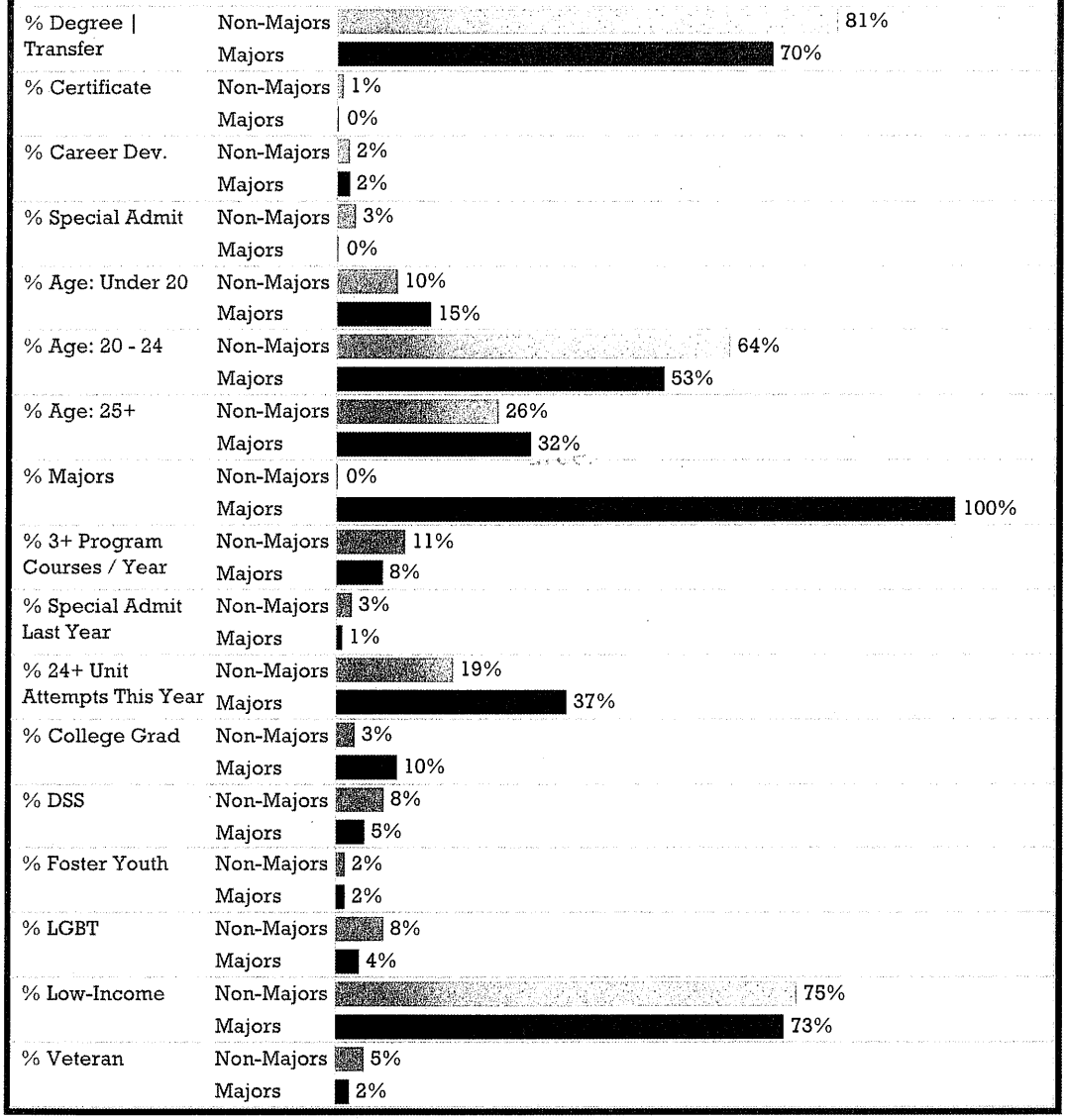
AY 20/21 Enrollments in Engineering courses for **Majors**

**183**

AY 20/21 Enrollments in Engineering courses for **Non-Majors**

**94**

## Majors vs. Non-Majors in Engineering Courses: AY 20/21




## Engineering Enrollments by Race | Ethnicity | Ancestry

| | Non-Majors | Majors |
|---|---|---|
| Asian | 30.9% | 15.3% |
| Black \| African Amer. | | |
| Filipino | 11.7% | |
| Latinx | 35.1% | 55.2% |
| Native Hawaiian \| Pacifi.. | | |
| Two or More | | 5.5% |
| Unknown | | 6.6% |
| White | 18.1% | 12.0% |

## Engineering Enrollments by Gender

| | Non-Majors | Majors |
|---|---|---|
| Female | 21.3% | 14.2% |
| Male | 74.5% | 76.0% |
| Unknown | | 9.8% |

**SECTION 3.1.3:** Which classes have the highest demand and why? Are they offered regularly -- at different times of the day and week, in different formats (in-person, online, hybrid)? Please explain.

**SECTION 3.1.5:** Does enrollment vary by semester? Please describe how course offerings are adjusted to meet student demand and help students reach their academic goals.

## 5 Courses with Most Enrollments
**(5 Year Totals)**

| Course | Enrollme.. | Sections | % Online | % Evening |
|---|---|---|---|---|
| ENGR 201 F | 310 | 11 | 7% | 38% |
| ENGR 105 F | 201 | 10 | 0% | 0% |
| ENGR 203 F | 171 | 6 | 0% | 21% |
| ENGR 203LF | 159 | 7 | 0% | 0% |
| ENGR 101AF | 142 | 9 | 0% | 0% |

## Average* Number of Sections Offered and Enrollment by Semester
**(5-Year Avg.)*

| | Avg. Sections | Avg. Enrollments |
|---|---|---|
| Summer | 1 | 22 |
| Fall | 3 | 74 |
| Spring | 6 | 131 |

## Number of Summer, Fall, and Spring Terms, respectively, a course has been offered in the last 5 years.

(5 = Course has been offered every Fall term in the last 5 years; 4 = Course has been offered 4 of the last 5 fall semesters, etc.)

| Course | Summer | Fall | Spring |
|---|---|---|---|
| ENGR 101AF | | 4 | 5 |
| ENGR 105 F | 5 | | 5 |
| ENGR 110 F | | 5 | |
| ENGR 201 F | 1 | 5 | 4 |
| ENGR 203 F | | | 5 |
| ENGR 203LF | | | 5 |
| ENGR 220 F | | 1 | |

## Number of Summer, Fall, and Spring Terms, respectively, a course has been offered in the last 5 years.

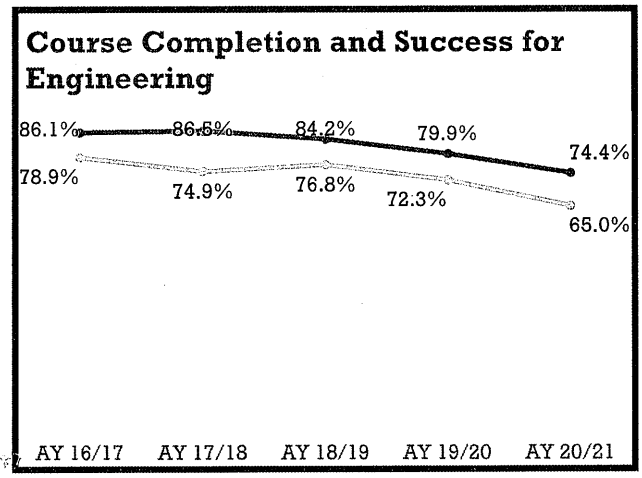
(5 = Course has been offered every Fall term in the last 5 years; 4 = Course has been offered 4 of the last 5 fall semesters, etc.)

**Course Completion + Course Success**

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: **completion, success**, degrees/certificates, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

## Course Completion and Success for Engineering

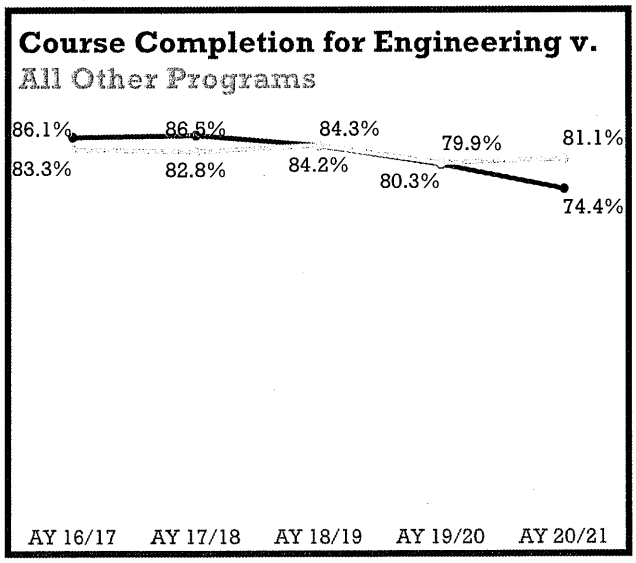
| | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 |
|---|---|---|---|---|---|
| Course Completion | 86.1% | 86.5% | 84.2% | 79.9% | 74.4% |
| Course Success | 78.9% | 74.9% | 76.8% | 72.3% | 65.0% |




## Course Completion and Success for Engineering Relative to All Other Programs

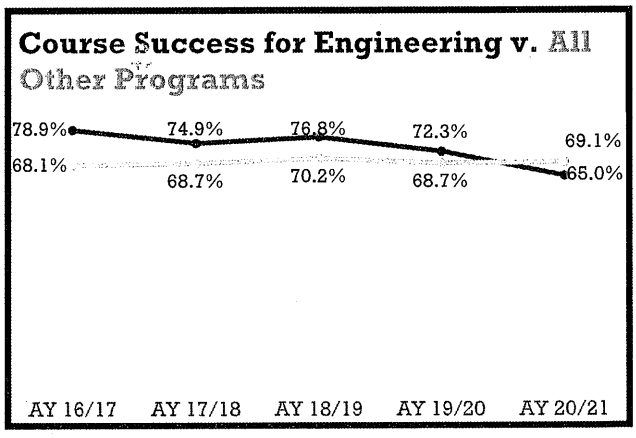
### Course Completion for Engineering

| | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 |
|---|---|---|---|---|---|
| Program Match | | | | | |
| All Other Progra.. | 83.3% | 82.8% | 84.3% | 80.3% | 81.1% |
| This Program | 86.1% | 86.5% | 84.2% | 79.9% | 74.4% |




### Course Success for Engineering

| | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 |
|---|---|---|---|---|---|
| Program Match | | | | | |
| All Other Progra.. | 68.1% | 68.7% | 70.2% | 68.7% | 69.1% |
| This Program | 78.9% | 74.9% | 76.8% | 72.3% | 65.0% |

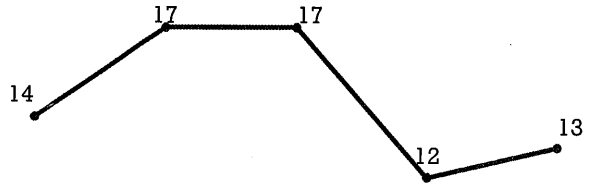


**Section 3.2.1:** Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, **degrees/certificates**, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).



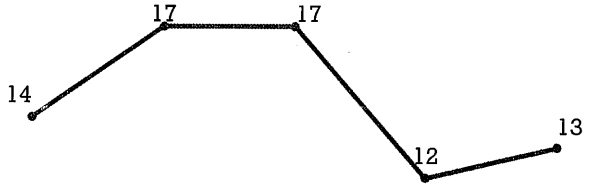
| # of Unique Students Earning a Program Award in Last 5 Years in Engineering | # of Unique Students Earning a Program Award by Type in Last 5 Years in Engineering |
|---|---|
| | Associate |
| **73** | **73** |

Program Awards by Year
**Total Awards**



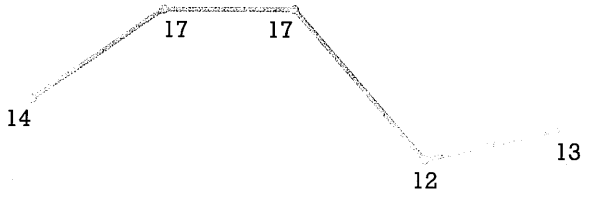

AY 16/17 AY 17/18 AY 18/19 AY 19/20 AY 20/21

Program Awards by Type
**Degrees, State Approved Certs + Local Certs**



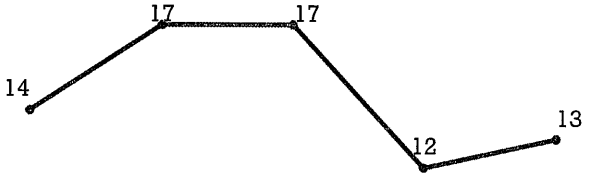

AY 16/17 AY 17/18 AY 18/19 AY 19/20 AY 20/21

Students Earning an Award by Year
**Unique Students**




AY 16/17 AY 17/18 AY 18/19 AY 19/20 AY 20/21

Program Awards
**AA/AS, ADT, Cert: <30 Units, Cert: 30 - 59 Units, Cert: 60+ Units, Local Certs**




AY 16/17 AY 17/18 AY 18/19 AY 19/20 AY 20/21

**Section 3.2.1:** Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, **degrees/certificates**, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

| # of Unique Students Earning a Program Award in Last 5 Years in Engineering | Total Program Award in Last 5 Years in Engineering |
|---|---|
| **73** | **73** |

**# of Students Earning a Program Award by Award Type**

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 | Grand Total |
| Associate | 14 | 17 | 17 | 12 | 13 | 73 |
| Total: Unique Students | 14 | 17 | 17 | 12 | 13 | 73 |

Program Award Details for Engineering
**Unique Students by Award Type by Year**

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 | Grand Total |
| AS | 14 | 17 | 17 | 12 | 13 | 73 |
| Unique Students | 14 | 17 | 17 | 12 | 13 | 73 |

Program Award Details for Engineering
**Total Specific Awards by Year**

| | | | AY 16/17 | AY 17/18 | AY 18/19 | AY 19/20 | AY 20/21 | Grand Total |
|---|---|---|---|---|---|---|---|---|
| AS | AS Engineering | 2S03834 | 14 | 17 | 17 | 12 | 13 | 73 |
| Total Awards | | | 14 | 17 | 17 | 12 | 13 | 73 |

**Transfer**

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, degrees/certificates, **transfer**, licensing, job placement, wage improvements (not all of these measures apply to every program).

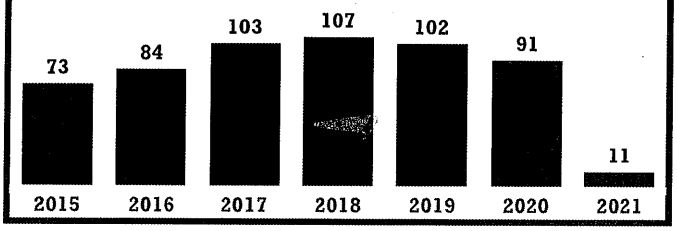
Total **Transfer** Students from Engineering

**571**

Transfers by **Award Earners or Majors**

| | |
|---|---|
| Degree / Cert. | 81 |
| Major | 490 |

**Starting Year @ 4-Year College**




**Transfer by Destination**

| | |
|---|---|
| CSU | 369 |
| UC | 87 |
| Other | 115 |

**Transfer by Race | Ethnicity | Ancestry**

| | Transfers | % |
|---|---|---|
| Asian | 152 | 27% |
| Black \| African Amer.. | 17 | 3% |
| Latinx | 203 | 36% |
| Two or More | 17 | 3% |
| Unknown | 16 | 3% |
| White | 166 | 29% |

**Transfer by Destination by Award Earner or Major**

| | Degree / Cert. | Major |
|---|---|---|
| CSU | 61 | 308 |
| UC | 16 | 71 |
| Other | 4 | 111 |
| Total | 81 | 490 |

**Most Popular 4-Year College Destination (Top 7)**

| | |
|---|---|
| CALIFORNIA STATE UNIVERSITY - FULLERTON | 168 |
| CALIFORNIA STATE POLYTECHNIC UNIVERSITY POMONA | 107 |
| CALIFORNIA STATE UNIVERSITY - LONG BEACH | 58 |
| UNIVERSITY OF CALIFORNIA - IRVINE | 28 |
| UNIVERSITY OF CALIFORNIA-SAN DIEGO | 14 |
| CALIFORNIA STATE UNIVERSITY - LOS ANGELES | 14 |
| UNIVERSITY OF CALIFORNIA - BERKELEY | 13 |

# COURSE COMPLETION: Equity Analysis for Engineering

**Section 3.2.2. Equity Analysis:** Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

## by Race | Ethnicity | Ancestry

| | Enrollments | Course Completion | Gap |
|---|---|---|---|
| Asian | 235 | 83.4% | |
| Black \| African Amer. | 14 | 85.7% | |
| Filipino | 49 | 69.4% | |
| Latinx | 500 | 80.8% | |
| Native Hawaiian \| Pacific Island.. | | | |
| Two or More | 34 | 76.5% | |
| Unknown | 53 | 83.0% | |
| White | 239 | 85.8% | |

## by Gender

| | Enrollments | Course Co.. | Gap |
|---|---|---|---|
| Different Id.. | 41 | 70.7% | |
| Female | 185 | 82.7% | |
| Male | 906 | 82.0% | |

## by DSS

| | Enrollments | Course Completion | Gap |
|---|---|---|---|
| Not DSS | 1,062 | 81.6% | |
| DSS | 70 | 82.9% | |

## by Foster Youth

| | Enrollments | Course Completion | Gap |
|---|---|---|---|
| Not Foster Y.. | 1,125 | 81.8% | |

## by LGBT

| | Enrollments | Course Completion | Gap |
|---|---|---|---|
| Not LGBT | 1,108 | 81.9% | |
| LGBT | 24 | 75.0% | |

## by Low Income

| | Enrollments | Course Completion | Gap |
|---|---|---|---|
| Not Low Income | 270 | 85.2% | |
| Low Income | 862 | 80.6% | -39.3 |

## by Military Status

| | Enrollments | Course Completion | Gap |
|---|---|---|---|
| Not Military | 1,099 | 81.5% | -70 |
| Military | 33 | 87.9% | |

# COURSE SUCCESS: Equity Analysis for Engineering



**Section 3.2.2. Equity Analysis:** Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

## by Race | Ethnicity | Ancestry

| | Enrollments | Course Success | Gap |
|---|---|---|---|
| Asian | 235 | 77.9% | |
| Black \| African Amer. | 14 | 71.4% | |
| Filipino | 49 | 69.4% | |
| Latinx | 500 | 70.0% | -27 |
| Native Hawaiian \| Pacific Islander | | | |
| Two or More | 34 | 50.0% | -8 |
| Unknown | 53 | 71.7% | |
| White | 239 | 79.5% | |

## by Gender

| | Enrollments | Course Suc.. | Gap |
|---|---|---|---|
| Female | 185 | 77.3% | |
| Male | 906 | 72.3% | -30.5 |
| Different Id.. | 41 | 68.3% | |

## by DSS

| | Enrollments | Course Success | Gap |
|---|---|---|---|
| Not DSS | 1,062 | 73.3% | |
| DSS | 70 | 68.6% | |

## by Foster Youth

| | Enrollments | Course Success | Gap |
|---|---|---|---|
| Not Foster Youth | 1,125 | 73.0% | |

## by LGBT

| | Enrollments | Course Success | Gap |
|---|---|---|---|
| Not LGBT | 1,108 | 73.0% | |
| LGBT | 24 | 70.8% | |

## by Low Income

| | Enrollments | Course Success | Gap |
|---|---|---|---|
| Not Low Income | 270 | 75.2% | |
| Low Income | 862 | 72.3% | |

## by Military

| | Enrollments | Course Success | Gap |
|---|---|---|---|
| Not Military | 1,099 | 72.6% | -134 |
| Military | 33 | 84.8% | |

## Degrees + Certificates: Equity Analysis for Engineering

**Section 3.2.2. Equity Analysis:** Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

**# of Unique Students Earning a Program Award by Type in Last 5 Years in Engineering**

Associate

**73**

## Engineering Majors in Engineering Courses vs. Engineering Award Earners

**Enrollments Among Engineering Majors by Race | Ethnicity | Ancestry**

| | |
|---|---|
| Asian | 16% |
| Black \| African American | 1% |
| Filipino | 4% |
| Latinx | 46% |
| Native Hawaiian \| Pacific Isl.. | 1% |
| Two or More | 3% |
| Unknown | 6% |
| White | 23% |

Program Awards in Engineering by Race | Ethnicity | Ancestry

| | Total Awards | % of Total Awards |
|---|---|---|
| Asian | 17 | 23% |
| Filipino | 5 | 7% |
| Latinx | 30 | 41% |
| Unknown | 7 | 10% |
| White | 14 | 19% |

**Section 3.3.1: Gateway Course Information.** Using the data provided by the OIE, briefly describe how students have moved through your program over the past five years: unit accumulation, prerequisites, corequisites, substitutions, **gateway courses**, and bottleneck courses. (Not all of these measures apply to every program.)

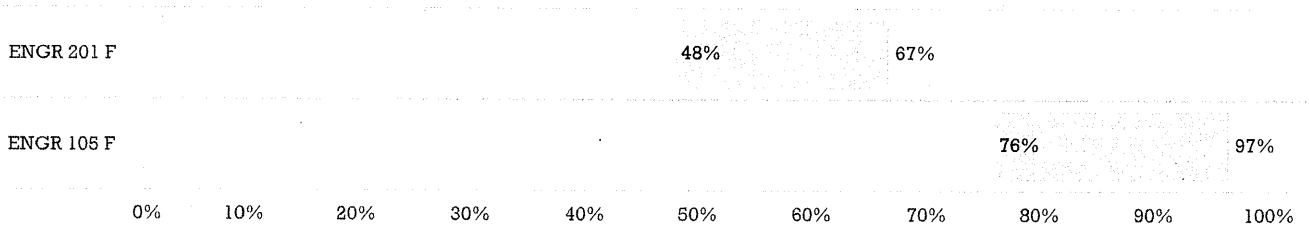
## 5 Most Enrolled Courses in Engineering

**NOTE: 5-year totals**

| | Enrollments | Students Repeating | % of Students who Repeated | Course Completion | Course Success | Withdraw Rate |
|---|---|---|---|---|---|---|
| ENGR 201 F | 310 | 31 | 11.3% | 71% | 58% | 29% |
| ENGR 105 F | 201 | 3 | 1.5% | 91% | 88% | 9% |
| ENGR 203 F | 171 | 2 | 1.2% | 85% | 74% | 15% |
| ENGR 203LF | 159 | 0 | 0.0% | 86% | 84% | 14% |
| ENGR 101AF | 142 | 6 | 4.4% | 82% | 65% | 18% |

## Range of Success Rates by Section: 20th Percentile v. 80th Percentile

***(At least 10 Sections Offered)***




## Disproportion Impact in Top 5 Enrolled Courses by Course by Race | Ethnicity | Ancestry

***NOTE: Only Identities with Calculated Disproportion Impact Appear***

| | | Enrollments | Course Success | Gap |
|---|---|---|---|---|
| ENGR 201 F | Filipino | 10 | 40.0% | -2 |

**Section 3.3.1: Bottleneck** Analysis: Using the data provided by the OIE, briefly describe how students have moved through your program over the past five years: unit accumulation, prerequisites, corequisites, substitutions, gateway courses, and **bottleneck** courses. (Not all of these measures apply to every program.)

**Within the last 5 years, courses by course success rate (ascending 5 courses).**

| | |
|---|---|
| ENGR 201 F | 58.1% |
| ENGR 101AF | 65.5% |
| ENGR 203 F | 73.7% |
| ENGR 110 F | 77.5% |
| ENGR 203LF | 84.3% |

**Within the last 5 years, the 5 courses with highest % of students repeating the course**
**(NOTE: Some courses may allow for repeat enrollment)**

| | |
|---|---|
| ENGR 201 F | 11.3% |
| ENGR 101AF | 4.4% |
| ENGR 105 F | 1.5% |
| ENGR 203 F | 1.2% |
| ENGR 110 F | 0.7% |

**Within the last 5 years, the 5 courses with the highest # of withdrawals**

| | |
|---|---|
| ENGR 201 F | 90 |
| ENGR 203 F | 26 |
| ENGR 101AF | 26 |
| ENGR 110 F | 24 |
| ENGR 203LF | 22 |

**Within the last 5 years, the 5 courses with the highest % of withdrawals**

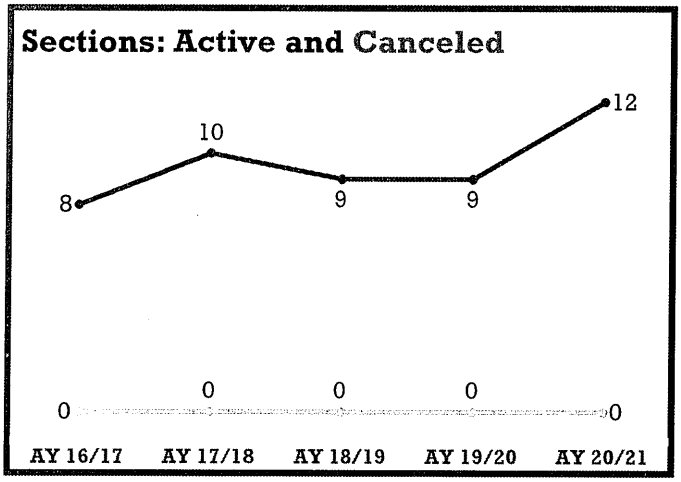
| | |
|---|---|
| ENGR 201 F | 29.0% |
| ENGR 101AF | 18.3% |
| ENGR 110 F | 17.4% |
| ENGR 203 F | 15.2% |
| ENGR 203LF | 13.8% |

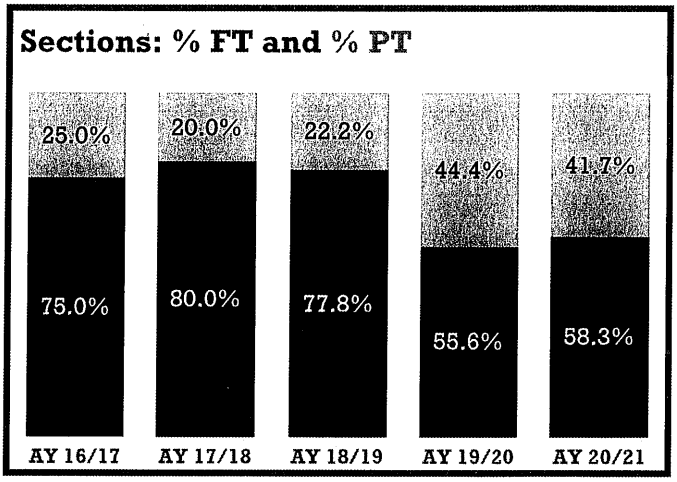
## Range of Success Rates by Section: 20th Percentile v. 80th Percentile

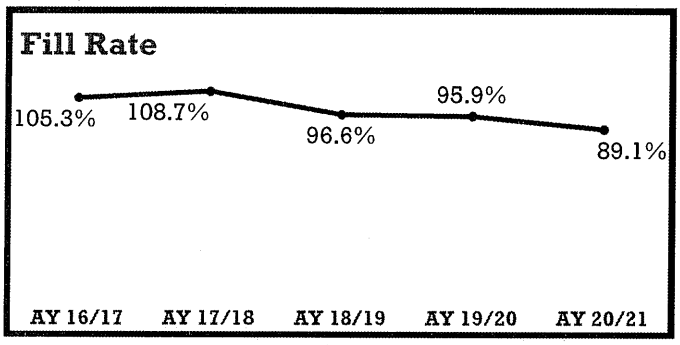
**(>=10 Sections, 100+ Enrollments, >=25 % Point Difference)**

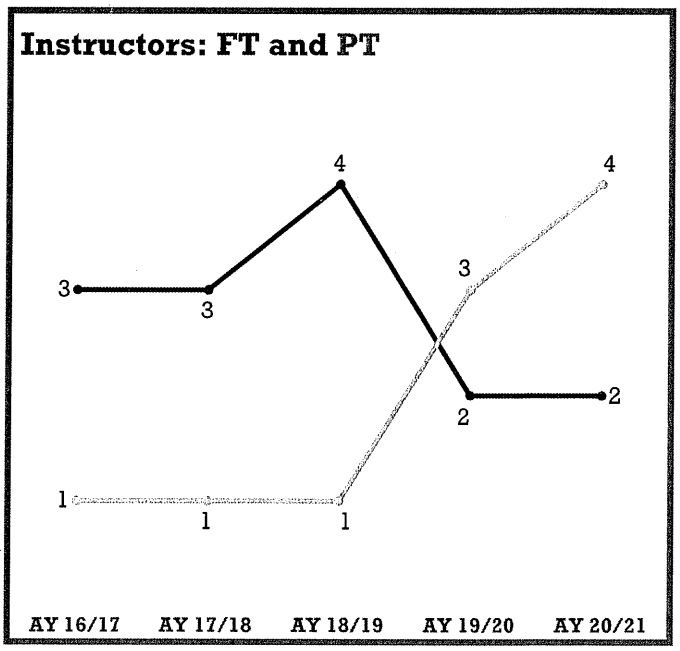
## Engineering Faculty:

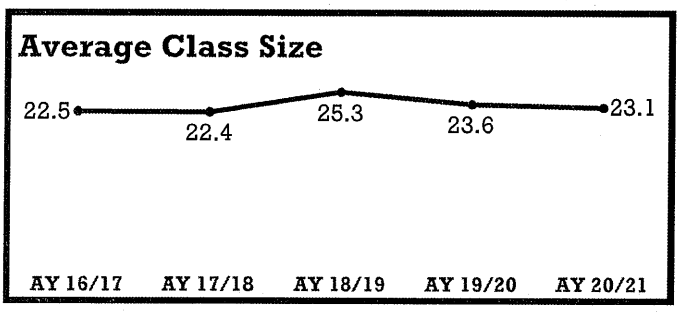
**Section 3.4.1 Faculty:** Using the data provided by the OIE, briefly describe the faculty workload over the past five years: FTF (full-time faculty), PTF (part-time, or "adjunct" faculty), FTEF (full-time equivalent faculty), WSCH per FTEF (weekly student contact hours). (Not all of these measures apply to every program.)

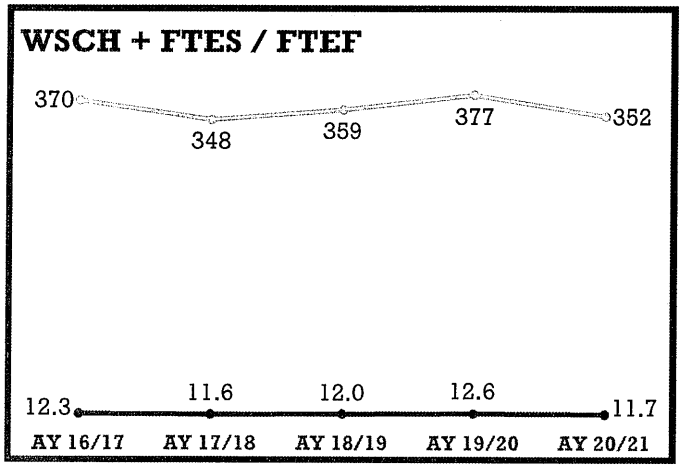


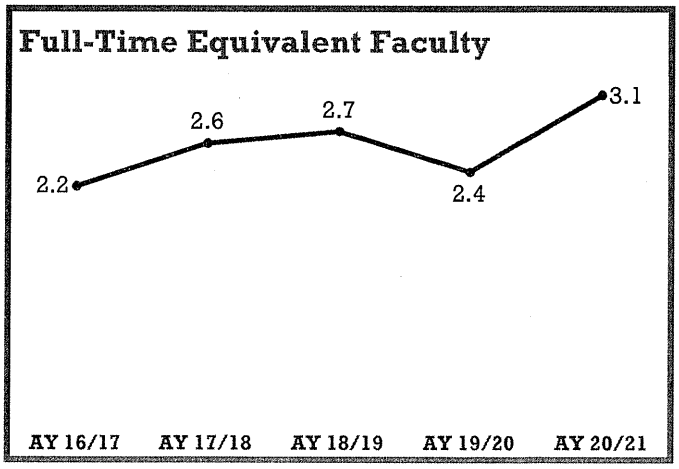



## Engineering General Education:

**Section 5.1:** Your Department and General Education.

### % of Enrollments Over the Last 5 Years in GE Courses

| | % of Enrollments | Enrollments |
|---|---|---|
| Non-GE Enrollments | 100.0% | 1,132 |

### Courses that Fulfill CSU General Education Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)

*(CSU and IGETC: 1 = Yes; 0 = No)*

**Appendix B: SLO data**

This data is still off-limits to the OIE because it is housed in eLumen. The Faculty Senate only allows faculty members to have access to SLO data on eLumen. The Senate's SLO Assessment Committee will work with its division reps to help departments disaggregate SLO data, just as KPI data is disaggregated in Appendix A.

**ENGR PSLO's as of 8/18/2021**

**Redesign (straight from ABET):new 8/2021**

1. Outcome: Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
Assessment: Exams

2. Outcome: Develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions
Assessment: Exams, Lab reports

## Program SLOs (before 8/2021)
## Associate in Science in Engineering

1. Outcome: Apply knowledge of mathematics, science, and engineering.
Assessment: Exams

2. Outcome: Design and conduct experiments, as well as to analyze and interpret data.
Assessment: Lab reports

3. Outcome: Identify, formulate, and solve engineering problems.
Assessment: Exams

4. Outcome: Use the techniques, skills, and modern engineering tools necessary for engineering practice.
Assessment: Exams, Lab reports

Fullerton College

# Course Statistics And Evidence using counts-2016-2021

## Engineering Dept.

**Date:** 09-11-2021

**Terms:** Spring 2021, Fall 2020, Summer 2020, Spring 2020, Fall 2019, Summer 2019, Spring 2019, Fall 2018, Summer 2018, Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016, Summer 2016

## Summary

| Statistic | Number of Courses | Courses |
|---|---|---|
| Courses in the Department | 7 | ENGR101AF, ENGR105 F, ENGR110 F, ENGR201 F, ENGR203 F, ENGR203LF, ENGR220 F |
| Courses with CSLOs | 7 | ENGR101AF, ENGR105 F, ENGR110 F, ENGR201 F, ENGR203 F, ENGR203LF, ENGR220 F |
| Courses without CSLOs | 0 | |
| Courses with CSLOs mapped to PSLOs | 6 | ENGR101AF, ENGR105 F, ENGR110 F, ENGR201 F, ENGR203 F, ENGR203LF |
| Courses without CSLOs mapped to PSLOs | 1 | ENGR220 F |
| Courses with direct assessment of PSLOs | 0 | |
| Courses with CSLOs mapped to ISLOs | 2 | ENGR105 F, ENGR220 F |
| Courses without CSLOs mapped to ISLOs | 5 | ENGR101AF, ENGR110 F, ENGR201 F, ENGR203 F, ENGR203LF |
| Courses with direct assessment of ISLOs | 0 | |
| Courses with at least one planned Assessment | 6 | ENGR101AF, ENGR105 F, ENGR110 F, ENGR201 F, ENGR203 F, ENGR203LF |
| Courses with planned Assessments scored | 4 | ENGR110 F, ENGR201 F, ENGR203 F, ENGR203LF |
| Courses with some Assessments scored | 1 | ENGR101AF |
| Courses without any Assessment scored | 1 | ENGR105 F |
| Courses with no planned Assessments | 1 | ENGR220 F |

# ENGR101AF - Surveying I

## SLOs

| | |
|---|---|
| CSLOs | » Solve the following types of problems: taping corrections, leveling tables, trigonometric leveling, traverse adjustments, traverse areas, horizontal curves, and vertical curves.<br><br>» Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. |
| Mapped PSLOs | **Engineering Associate in Science Degree**<br>» Analyze and interpret data an ability to identify, formulate, and solve engineering problems an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.<br>» Apply knowledge of mathematics, science, and engineerings.<br>» Identify, formulate, and solve engineering problems. |
| Mapped ISLOs | (None) |

## Assessments

**Fall 2016**

**SLO#1**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Solve the following types of problems: taping corrections, leveling tables, trigonometric leveling, traverse adjustments, traverse areas, horizontal curves, and vertical curves. | 0 of 13 | 0 | 0 | 0.0 |

**SLO#2**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. | 0 of 13 | 0 | 0 | 0.0 |

**Spring 2021**

**Solve the following types of problems: taping corrections, leveling tables, trigonometric leveling, traverse adjustments, traverse areas, horizontal curves, and vertical curves.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Solve the following types of problems: taping corrections, leveling tables, trigonometric leveling, traverse adjustments, traverse areas, horizontal curves, and vertical curves. | 18 of 18 | 12 | 4 | 2.0 |

**Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. | 18 of 18 | 0 | 0 | 18.0 |

## ENGR105 F - Engineering CAD

### SLOs

| | |
|---|---|
| CSLOs | » Utilize basic skills achieved of computer-assisted drafting and design to advanced level engineering computer-assisted drafting and design problems<br>» Integrate the aforementioned basic skills into other areas of computer-assisted drafting and design.<br>» Demonstrate computer-assisted drafting skills and design practices to create engineering drawings.<br>» Articulate and present imagined ideas in a format that represents professional and formal illustration. |
| Mapped PSLOs | **Engineering Associate in Science Degree**<br>» Analyze and interpret data an ability to identify, formulate, and solve engineering problems an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.<br>» Apply knowledge of mathematics, science, and engineerings.<br>» Identify, formulate, and solve engineering problems. |
| Mapped ISLOs | **ISLO**<br>ISLO 2-Critical Thinking and Information Competency<br>» Analyze and synthesize data/information in a variety of forms (numerical, textual, graphic) for the purpose of interpretation, problem-solving, and decision-making.<br>ISLO 5-Personal Responsibility and Professional Development<br>» Articulate personal values and goals as well as explain the skills, mindsets, and behaviors necessary to achieve well-being and professional success.<br>ISLO 1- Communication<br>» Communicate clearly and appropriately for a variety of purposes and audiences. |

### Assessments

**Spring 2021**

**Articulate and present imagined ideas in a format that represents professional and formal illustration.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Articulate and present imagined ideas in a format that represents professional and formal illustration. | 0 of 20 | 0 | 0 | 0.0 |

**Demonstrate computer-assisted drafting skills and design practices to create engineering drawings.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Demonstrate computer-assisted drafting skills and design practices to create engineering drawings. | 0 of 20 | 0 | 0 | 0.0 |

## ENGR110 F - Introduction to Engineering

### SLOs

| | |
|---|---|
| CSLOs | » Demonstrate knowledge of careers in the Engineering Profession, fields of study within Engineering and the Engineering Education system.<br>» Apply engineering and scientific problem methods to introductory mechanics and electricity. |

| | |
|---|---|
| Mapped PSLOs | **Engineering Associate in Science Degree**<br>» Analyze and interpret data an ability to identify, formulate, and solve engineering problems an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.<br>» Apply knowledge of mathematics, science, and engineerings.<br>» Identify, formulate, and solve engineering problems.<br>**Autonomous Systems Development Associate in Science Degree**<br>» Design and conduct experiments, as well as to analyze and interpret data.<br>» Analyze and interpret data and compare results with theoretical calculations. |
| Mapped ISLOs | (None) |

## Assessments

**Fall 2016**

**SLO#1**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Demonstrate knowledge of careers in the Engineering Profession, fields of study within Engineering and the Engineering Education system. | 19 of 19 | 17 | 2 | 0.0 |

**SLO#2**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Apply engineering and scientific problem methods to introductory mechanics and electricity. | 19 of 19 | 12 | 7 | 0.0 |

**Fall 2020**

**SLO#1**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Demonstrate knowledge of careers in the Engineering Profession, fields of study within Engineering and the Engineering Education system. | 0 of 31 | 0 | 0 | 0.0 |

**SLO#2**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Apply engineering and scientific problem methods to introductory mechanics and electricity. | 0 of 31 | 0 | 0 | 0.0 |

# ENGR201 F - Statics

## SLOs

| | |
|---|---|
| CSLOs | » Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions.<br>» Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. |

| | |
|---|---|
| Mapped PSLOs | **Engineering Associate in Science Degree**<br>» Analyze and interpret data an ability to identify, formulate, and solve engineering problems an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.<br>» Apply knowledge of mathematics, science, and engineerings.<br>» Identify, formulate, and solve engineering problems. |
| Mapped ISLOs | (None) |

## Assessments

**Fall 2016**

**SLO#1**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions. | 22 of 22 | 18 | 4 | 0.0 |

**SLO#2**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. | 22 of 22 | 14 | 8 | 0.0 |

**Fall 2020**

**Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions. | 18 of 18 | 7 | 9 | 2.0 |

**Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. | 18 of 18 | 8 | 8 | 2.0 |

**Spring 2021**

**Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions. | 16 of 16 | 9 | 4 | 3.0 |

**Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. | 16 of 16 | 7 | 6 | 3.0 |

## ENGR203 F - Electric Circuits

### SLOs

| | |
|---|---|
| CSLOs | » Translate a circuit diagram to its governing equations and solve these equations.<br>» Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits. |
| Mapped PSLOs | **Engineering Associate in Science Degree**<br>» Apply knowledge of mathematics, science, and engineerings.<br>» Identify, formulate, and solve engineering problems.<br>**Autonomous Systems Development Associate in Science Degree**<br>» Analyze and interpret data and compare results with theoretical calculations. |
| Mapped ISLOs | (None) |

### Assessments

**Spring 2021**

**Translate a circuit diagram to its governing equations and solve these equations.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Translate a circuit diagram to its governing equations and solve these equations. | 31 of 31 | 16 | 15 | 0.0 |

**Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits. | 31 of 31 | 16 | 15 | 0.0 |

## ENGR203LF - Electric Circuits Lab

### SLOs

| | |
|---|---|
| CSLOs | » Use multiple tools to measure currents and voltages in various circuits and evaluate the data.<br>» Analyze and interpret data and compare results with theoretical calculations. |
| Mapped PSLOs | **Engineering Associate in Science Degree**<br>» Analyze and interpret data an ability to identify, formulate, and solve engineering problems an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.<br>» Apply knowledge of mathematics, science, and engineerings.<br>» Identify, formulate, and solve engineering problems.<br>**Autonomous Systems Development Associate in Science Degree**<br>» Design and conduct experiments, as well as to analyze and interpret data.<br>» Analyze and interpret data and compare results with theoretical calculations. |
| Mapped ISLOs | (None) |

### Assessments

**Spring 2021**

**Use multiple tools to measure currents and voltages in various circuits and evaluate the data.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Use multiple tools to measure currents and voltages in various circuits and evaluate the data. | 30 of 30 | 27 | 2 | 1.0 |

**Analyze and interpret data and compare results with theoretical calculations.**

| SLO | Scored | Meets expectations | Does not meet expectations | N/A |
|---|---|---|---|---|
| Analyze and interpret data and compare results with theoretical calculations. | 30 of 30 | 27 | 2 | 1.0 |

## ENGR220 F - Prog and Prob-Slvg MATLAB

### SLOs

| | |
|---|---|
| CSLOs | » Use MATLAB to solve basic technical problems in engineering, math and science.<br>» Apply programming concepts of variables, functions and flow structures to solve STEM-related technical problems. |
| Mapped PSLOs | (None) |
| Mapped ISLOs | **ISLO**<br>ISLO 2-Critical Thinking and Information Competency<br>» Analyze and synthesize data/information in a variety of forms (numerical, textual, graphic) for the purpose of interpretation, problem-solving, and decision-making. |

Fullerton College

# SLO Performance Report-Engineering

## by Demographic Category with Demographic Element

The purpose of this report is to present the number and percent of assessment scores at each mastery level for each program or institution learning outcome for a given term(s) or assessment cycle(s) for a given department, program, or course group. You can also choose to show this information by course.

**Department:** Engineering Dept.

**Courses:** All Courses

**Terms:** Spring 2021, Fall 2020, Summer 2020, Spring 2020, Fall 2019, Summer 2019, Spring 2019, Fall 2018, Summer 2018, Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016, Summer 2016

**SLOs:** Engineering Data Group

**Date:** 09-18-2021

**Demographics Categories and Elements:**
Ethnicity: African American, American Indian/Alaskan Native, Asian, Filipino, Hispanic, Pacific Islander, Unknown, Unspecified, White Non-Hispanic

## Demographic Category: Ethnicity

### African American

**CSLO: Apply programming concepts of variables, functions and flow structures to solve STEM-related technical problems.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Use multiple tools to measure currents and voltages in various circuits and evaluate the data. | 0 | 0.00% | 0 | 0.00% | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Analyze and interpret data and compare results with theoretical calculations. | 0 | 0.00% | 0 | 0.00% | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Apply engineering and scientific problem methods to introductory mechanics and electricity. | 0 | 0.00% | 0 | 0.00% | 4 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. | 0 | 0.00% | 0 | 0.00% | 9 | 90.00% | 0 | 0.00% | 1 | 10.00% |
| Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits. | 0 | 0.00% | 0 | 0.00% | 3 | 60.00% | 0 | 0.00% | 2 | 40.00% |
| Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Category: Ethnicity**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 61 | 74.39% | 0 | 0.00% | 21 | 25.61% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 114 | 70.37% | 0 | 0.00% | 48 | 29.63% |

**Overall by Demographic Element for Demographic Category: Ethnicity**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| African American | 0 | 0.00% | 0 | 0.00% | 6 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| American Indian/Alaskan Native | 0 | 0.00% | 0 | 0.00% | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Asian | 0 | 0.00% | 0 | 0.00% | 61 | 81.33% | 0 | 0.00% | 14 | 18.67% |
| Filipino | 0 | 0.00% | 0 | 0.00% | 8 | 66.67% | 0 | 0.00% | 4 | 33.33% |
| Hispanic | 0 | 0.00% | 0 | 0.00% | 62 | 52.54% | 0 | 0.00% | 56 | 47.46% |
| Pacific Islander | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Unknown | 0 | 0.00% | 0 | 0.00% | 6 | 54.55% | 0 | 0.00% | 5 | 45.45% |
| Unspecified | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| White Non-Hispanic | 0 | 0.00% | 0 | 0.00% | 45 | 86.54% | 0 | 0.00% | 7 | 13.46% |

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: F**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 6 | 50.00% | 0 | 0.00% | 6 | 50.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 1 | 16.67% | 0 | 0.00% | 5 | 83.33% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 23 | 63.89% | 0 | 0.00% | 13 | 36.11% |

**Overall by CSLO for Demographic Element: F**

| Greatly exceeds expectations. | Exceeds expectations | Meets expectations | Does not meet expectations but developing | Does not meet expectations |
|---|---|---|---|---|

**CSLO: Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 14 | 56.00% | 0 | 0.00% | 11 | 44.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 14 | 56.00% | 0 | 0.00% | 11 | 44.00% |

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: M**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 53 | 80.30% | 0 | 0.00% | 13 | 19.70% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 14 | 53.85% | 0 | 0.00% | 12 | 46.15% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 91 | 72.22% | 0 | 0.00% | 35 | 27.78% |

**Overall by CSLO for Demographic Element: M**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Apply programming concepts of variables, functions and flow structures to solve STEM-related technical problems. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Articulate and present imagined ideas in a format that represents professional and formal illustration. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Demonstrate computer-assisted drafting skills and design practices to create engineering drawings. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Use MATLAB to solve basic technical problems in engineering, math and science. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions. | 0 | 0.00% | 0 | 0.00% | 29 | 76.32% | 0 | 0.00% | 9 | 23.68% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Category: Gender**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 61 | 74.39% | 0 | 0.00% | 21 | 25.61% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 114 | 70.37% | 0 | 0.00% | 48 | 29.63% |

**Overall by Demographic Element for Demographic Category: Gender**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| F | 0 | 0.00% | 0 | 0.00% | 30 | 55.56% | 0 | 0.00% | 24 | 44.44% |
| M | 0 | 0.00% | 0 | 0.00% | 158 | 72.48% | 0 | 0.00% | 60 | 27.52% |
| N | 0 | 0.00% | 0 | 0.00% | 2 | 50.00% | 0 | 0.00% | 2 | 50.00% |
| X | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**CSLO: Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 14 | 48.28% | 0 | 0.00% | 15 | 51.72% |
| Overall | 0 | 0.00% | 0 | 0.00% | 14 | 48.28% | 0 | 0.00% | 15 | 51.72% |

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: UNKNOWN**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 36 | 81.82% | 0 | 0.00% | 8 | 18.18% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 104 | 68.42% | 0 | 0.00% | 48 | 31.58% |

**Overall by CSLO for Demographic Element: UNKNOWN**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Apply programming concepts of variables, functions and flow structures to solve STEM-related technical problems. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Articulate and present imagined ideas in a format that represents professional and formal illustration. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Demonstrate computer-assisted drafting skills and design practices to create engineering drawings. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Use MATLAB to solve basic technical problems in engineering, math and science. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Analyze and solve the equilibrium conditions for a particle, a rigid body, a truss or a beam in two or three dimensions. | 0 | 0.00% | 0 | 0.00% | 25 | 65.79% | 0 | 0.00% | 13 | 34.21% |

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: Y**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 25 | 65.79% | 0 | 0.00% | 13 | 34.21% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 10 | 100.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by CSLO for Demographic Element: Y**

| Greatly exceeds expectations. | Exceeds expectations | Meets expectations | Does not meet expectations but developing | Does not meet expectations |
|---|---|---|---|---|

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Use multiple tools to measure currents and voltages in various circuits and evaluate the data. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Analyze and interpret data and compare results with theoretical calculations. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Apply engineering and scientific problem methods to introductory mechanics and electricity. | 0 | 0.00% | 0 | 0.00% | 6 | 85.71% | 0 | 0.00% | 1 | 14.29% |
| Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. | 0 | 0.00% | 0 | 0.00% | 5 | 41.67% | 0 | 0.00% | 7 | 58.33% |
| Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits. | 0 | 0.00% | 0 | 0.00% | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Category: Economically Disadvantaged Status**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 61 | 74.39% | 0 | 0.00% | 21 | 25.61% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 114 | 70.37% | 0 | 0.00% | 48 | 29.63% |

**Overall by Demographic Element for Demographic Category: Economically Disadvantaged Status**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| UNKNOWN | 0 | 0.00% | 0 | 0.00% | 155 | 67.98% | 0 | 0.00% | 73 | 32.02% |
| Y | 0 | 0.00% | 0 | 0.00% | 35 | 72.92% | 0 | 0.00% | 13 | 27.08% |

**Demographic Category: Ethnicity**

**African American**

**CSLO: Apply programming concepts of variables, functions and flow structures to solve STEM-related technical problems.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: African American**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 6 | 100.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by CSLO for Demographic Element: African American**

| Greatly exceeds expectations. | Exceeds expectations | Meets expectations | Does not meet expectations but developing | Does not meet expectations |
|---|---|---|---|---|

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: Asian**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 15 | 93.75% | 0 | 0.00% | 1 | 6.25% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 6 | 60.00% | 0 | 0.00% | 4 | 40.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 40 | 81.63% | 0 | 0.00% | 9 | 18.37% |

**Overall by CSLO for Demographic Element: Asian**

| Greatly exceeds expectations. | Exceeds expectations | Meets expectations | Does not meet expectations but developing | Does not meet expectations |
|---|---|---|---|---|

**CSLO: Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Element: Hispanic**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 20 | 52.63% | 0 | 0.00% | 18 | 47.37% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 6 | 37.50% | 0 | 0.00% | 10 | 62.50% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 36 | 56.25% | 0 | 0.00% | 28 | 43.75% |

**Overall by CSLO for Demographic Element: Hispanic**

| Greatly exceeds expectations. | Exceeds expectations | Meets expectations | Does not meet expectations but developing | Does not meet expectations |
|---|---|---|---|---|

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Use multiple tools to measure currents and voltages in various circuits and evaluate the data. | 0 | 0.00% | 0 | 0.00% | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Analyze and interpret data and compare results with theoretical calculations. | 0 | 0.00% | 0 | 0.00% | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Apply engineering and scientific problem methods to introductory mechanics and electricity. | 0 | 0.00% | 0 | 0.00% | 4 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Determine and diagram the forces acting on a particle or a rigid body in two or three dimensions. | 0 | 0.00% | 0 | 0.00% | 9 | 90.00% | 0 | 0.00% | 1 | 10.00% |
| Differentiate between different techniques and choose the appropriate technique to solve a problem involving linear circuits. | 0 | 0.00% | 0 | 0.00% | 3 | 60.00% | 0 | 0.00% | 2 | 40.00% |
| Operate and properly use the following surveying equipment: steel tape, automatic level, various types of leveling rods, theodolite, and total station. | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

**Overall by Term for Demographic Category: Ethnicity**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 61 | 74.39% | 0 | 0.00% | 21 | 25.61% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 114 | 70.37% | 0 | 0.00% | 48 | 29.63% |

**Overall by Demographic Element for Demographic Category: Ethnicity**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| African American | 0 | 0.00% | 0 | 0.00% | 6 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| American Indian/Alaskan Native | 0 | 0.00% | 0 | 0.00% | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Asian | 0 | 0.00% | 0 | 0.00% | 61 | 81.33% | 0 | 0.00% | 14 | 18.67% |
| Filipino | 0 | 0.00% | 0 | 0.00% | 8 | 66.67% | 0 | 0.00% | 4 | 33.33% |
| Hispanic | 0 | 0.00% | 0 | 0.00% | 62 | 52.54% | 0 | 0.00% | 56 | 47.46% |
| Pacific Islander | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Unknown | 0 | 0.00% | 0 | 0.00% | 6 | 54.55% | 0 | 0.00% | 5 | 45.45% |
| Unspecified | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| White Non-Hispanic | 0 | 0.00% | 0 | 0.00% | 45 | 86.54% | 0 | 0.00% | 7 | 13.46% |

**Demographic Category: Foster Youth Status**

**Y**

**CSLO: Apply programming concepts of variables, functions and flow structures to solve STEM-related technical problems.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Overall | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 114 | 70.37% | 0 | 0.00% | 48 | 29.63% |

**Overall by Demographic Element for Demographic Category: Age Range**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| 17 and Younger | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| 18-19 | 0 | 0.00% | 0 | 0.00% | 28 | 82.35% | 0 | 0.00% | 6 | 17.65% |
| 20-24 | 0 | 0.00% | 0 | 0.00% | 101 | 63.92% | 0 | 0.00% | 57 | 36.08% |
| 25-29 | 0 | 0.00% | 0 | 0.00% | 33 | 70.21% | 0 | 0.00% | 14 | 29.79% |
| 30-34 | 0 | 0.00% | 0 | 0.00% | 5 | 50.00% | 0 | 0.00% | 5 | 50.00% |
| 35-39 | 0 | 0.00% | 0 | 0.00% | 6 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| 40-49 | 0 | 0.00% | 0 | 0.00% | 10 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| 50+ | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Unknown | 0 | 0.00% | 0 | 0.00% | 6 | 60.00% | 0 | 0.00% | 4 | 40.00% |

**Demographic Category: Age**

**(No Demographic Element found)**

**Overall by Term for Department: Tech & Engineering Div. » Engineering Dept.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Summer 2016 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2016 | 0 | 0.00% | 0 | 0.00% | 61 | 74.39% | 0 | 0.00% | 21 | 25.61% |
| Spring 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2017 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2018 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2019 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Spring 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Summer 2020 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Fall 2020 | 0 | 0.00% | 0 | 0.00% | 15 | 46.88% | 0 | 0.00% | 17 | 53.12% |
| Spring 2021 | 0 | 0.00% | 0 | 0.00% | 114 | 70.37% | 0 | 0.00% | 48 | 29.63% |

**Overall by Demographic Category for Department: Tech & Engineering Div. » Engineering Dept.**

| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gender | 0 | 0.00% | 0 | 0.00% | 190 | 68.84% | 0 | 0.00% | 86 | 31.16% |

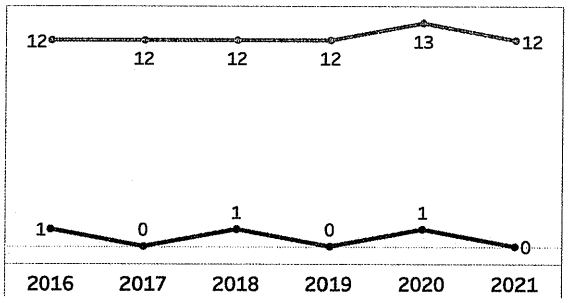
| | Greatly exceeds expectations. | | Exceeds expectations | | Meets expectations | | Does not meet expectations but developing | | Does not meet expectations | |
|---|---|---|---|---|---|---|---|---|---|---|
| Economically Disadvantaged Status | 0 | 0.00% | 0 | 0.00% | 190 | 68.84% | 0 | 0.00% | 86 | 31.16% |
| Ethnicity | 0 | 0.00% | 0 | 0.00% | 190 | 68.84% | 0 | 0.00% | 86 | 31.16% |
| Foster Youth Status | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Veteran Status | 0 | 0.00% | 0 | 0.00% | 6 | 85.71% | 0 | 0.00% | 1 | 14.29% |
| Age Range | 0 | 0.00% | 0 | 0.00% | 190 | 68.84% | 0 | 0.00% | 86 | 31.16% |
| Age | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |

# Key Performance Indicators: Course Sections

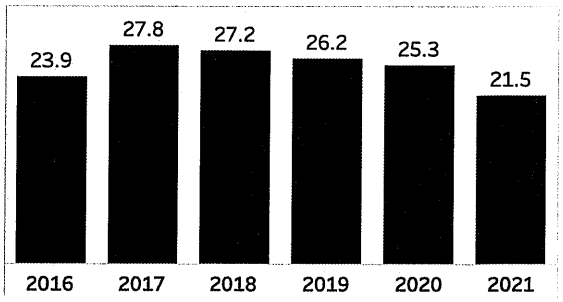
*NOTE: An Academic Year combines the Summer, Fall, and Spring terms (e.g.., Academic Year 2013 includes Summer 2012, Fall 2012, and Spring 2013).

Division: Natural Science
Program: Physics
View By*: Academic Years
Course: PHYS 221 F
Method of Instruction: (All)

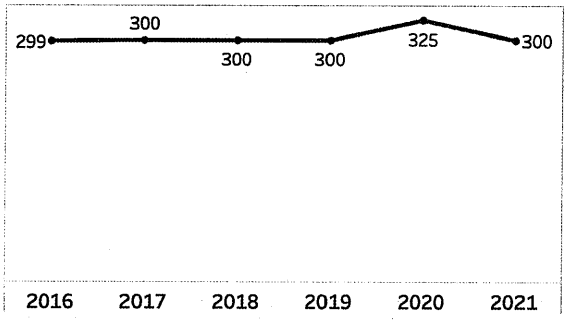
## Sections (Active & Canceled)



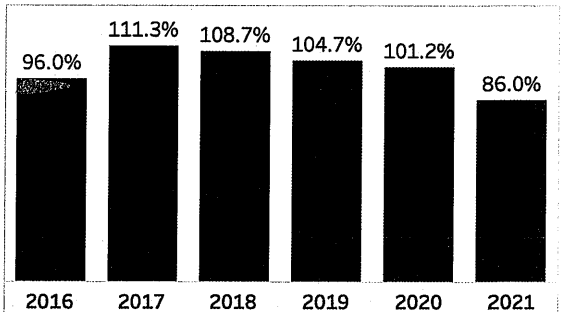

## Average Census Class Size




## Capacity (Total Seats)




## Census Fill Rate



## Appendix C: Other data

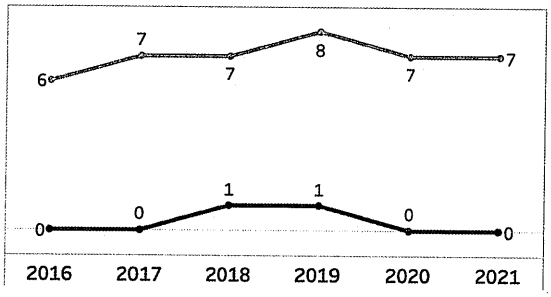
In addition to the KPI and SLO data, departments may wish to include other data that it finds in Tableau or other sources.

# Key Performance Indicators: Course Sections

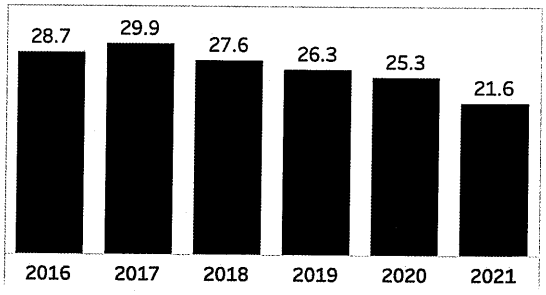
*NOTE: An Academic Year combines the Summer, Fall, and Spring terms (e.g.., Academic Year 2013 includes Summer 2012, Fall 2012, and Spring 2013).

| | | | |
|---|---|---|---|
| **Division:** | Natural Science | **Course:** | PHYS 222 F |
| **Program:** | Physics | **Method of Instruction:** | (All) |
| **View By*:** | Academic Years | | |

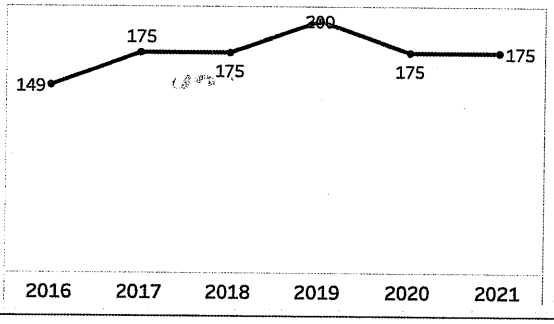
## Sections (Active & Canceled)



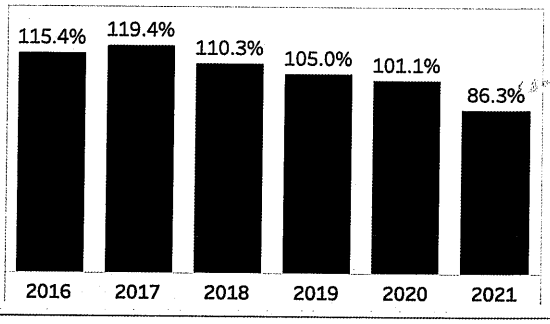

## Average Census Class Size




## Capacity (Total Seats)




## Census Fill Rate

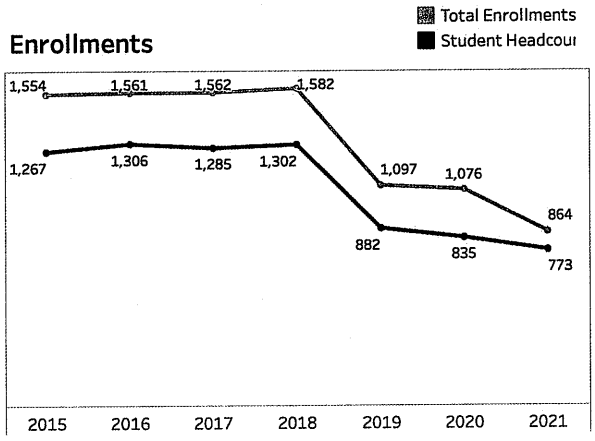


# Key Performance Indicators: Enrollment

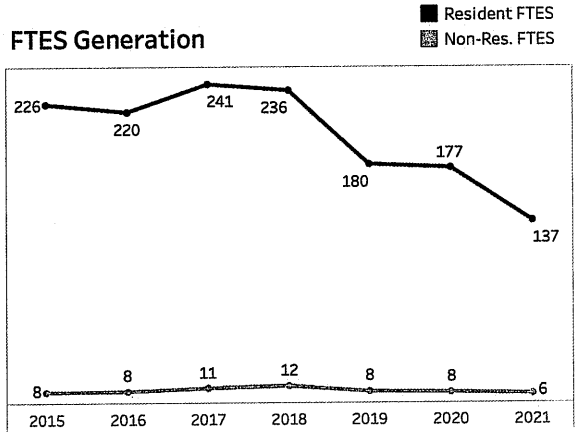
*NOTE: An Academic Year combines the Summer, Fall, and Spring terms (e.g., Academic Year 2013 includes Summer 2012, Fall 2012, and Spring 2013).

Division: (All)
Program: Physics
View By*: Academic Years

## Enrollments




## FTES Generation




## Course Enrollments

| Course | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Grand Total |
|---|---|---|---|---|---|---|---|---|
| PHYS 120 F | 12 | | | | | | | 12 |
| PHYS 130 F | 173 | 96 | 184 | 117 | 27 | 22 | | 619 |
| PHYS 205 F | 34 | 27 | 20 | 20 | 25 | 29 | 24 | 179 |
| PHYS 206 F | 11 | 11 | 7 | 6 | 6 | 11 | 12 | 64 |
| PHYS 210 F | 27 | 21 | 29 | 25 | 30 | 15 | 26 | 173 |
| PHYS 211 F | 8 | 8 | 12 | 4 | 6 | 11 | 18 | 67 |
| PHYS 221 F | 209 | 286 | 327 | 318 | 314 | 330 | 259 | 2,043 |
| PHYS 222 F | 142 | 172 | 209 | 193 | 211 | 172 | 151 | 1,250 |
| PHYS 223 F | 78 | 15 | 63 | 63 | 44 | 44 | 33 | 340 |
| Grand Total | 1,554 | 1,561 | 1,562 | 1,582 | 1,097 | 1,076 | 864 | 9,296 |

# Key Performance Indicators: Enrollment and Success

*NOTE: An Academic Year combines the Summer, Fall, and Spring terms (e.g.., Academic Year 2013 includes Summer 2012, Fall 2012, and Spring 2013).

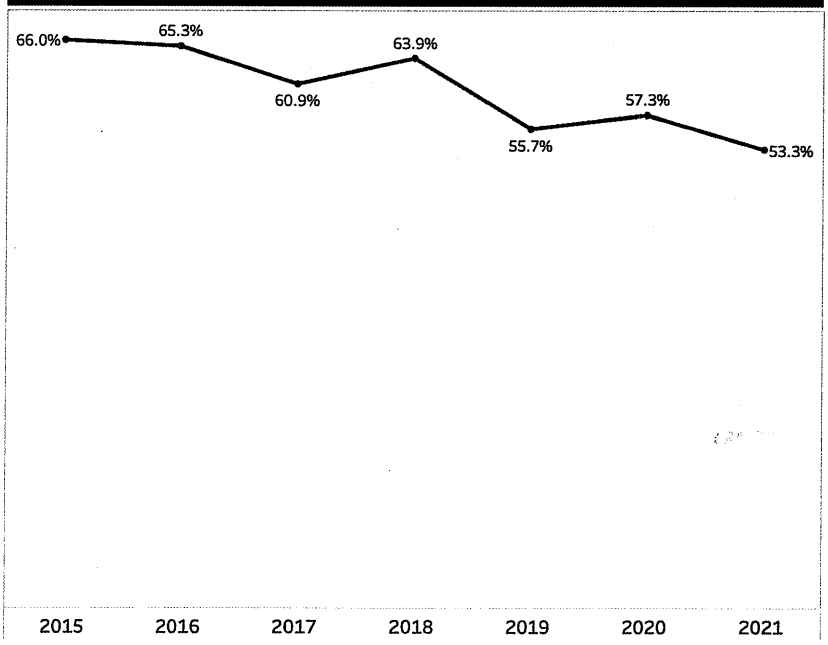
**Select Program(s):**

**Division:** (All)

**Program:** Physics

**View By*:** Academic Years

## Course Success by All (Academic Years)




**Additional Filters:**

**Course:**

(Multiple values)

- [ ] (All)
- [ ] ESC 116 F
- [ ] ESC 116HF
- [ ] ESC 116LF
- [ ] PHYS 120 F
- [ ] PHYS 130 F
- [ ] PHYS 205 F
- [ ] PHYS 206 F
- [ ] PHYS 210 F
- [ ] PHYS 211 F
- [x] PHYS 221 F
- [x] PHYS 222 F
- [x] PHYS 223 F

# ENGINEERING

## PROGRAM INFORMATION

The Engineering Program at Fullerton College provides the student with a variety of basic classes. Courses are offered in Surveying, Engineering Drawing, Statics, and Electrical Circuits. These courses are (UC) Degree credit. In addition to the Engineering courses the student may also complete the appropriate Math, Physics and General Education.

## PROGRAM OPTIONS

- The Associate of Science Degree Engineering
- Vocational certificates are offered as step toward engineering. Certificates are offered in Manufacturing Technology, Construction Technology, Drafting Technology

## CAREER OPPORTUNITIES/TRANSFER

- Transfer to the UC/CSU and private universities.





FULLERTON COLLEGE
321 E. Chapman Ave.
Fullerton, CA 92832-2095

# *ENGINEERING*

FULLERTON
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**A Place to Discover Yourself,
A Place to Grow**

Fullerton College can provide you with the education you'll need to succeed both personally and professionally in today's complex society.

Whether you are interested in college transfer or vocational training, in gaining new skills or upgrading current ones - whatever your need, at Fullerton College you will have the opportunity to prepare for tomorrow's world, for life!

ENGINEERING

FULLERTON COLLEGE

# ENGINEERING

## Fall 2021 Schedule

(CLASSES BEGIN August 23, 2021)

| | Class | CRN # | Time | Days |
|---|---|---|---|---|
| ENGR 101A | Surveying I | 14955 | 8:00 - 2:40p | S |
| ENGR 110 | Introduction to Engineering | 10915 | 5:35 – 7:00p | T,Th |
| ENGR 201 | Statics | 10916 | Online<br>1:00 – 3:00p | ----<br>W |

PROGRAM INFORMATION

The Engineering Program at Fullerton College provides the student with a variety of basic classes. Courses are offered in Surveying, Engineering Drawing, Statics, and Electrical Circuits. These courses are (UC) Degree credit. In addition to the Engineering courses the student may also complete the appropriate Math, Physics and General Education.

For Admission/Registration information, call (714) 905-5162. For information regarding classes, call (714) 992-7051. See the Fullerton College web page at http://www.fullcoll.edu



Notice to Students: The information contained on this page is advisory only and does not constitute a contractual agreement by the college.

6/ 15 / 21

# TYPICAL ENGINEERING PREREQUISITE PATTERN